Somerset, Wiltshire, Avon and Gloucestershire (SWAG) Cancer Services

Upper Gastro-Intestinal (UGI) and Hepato-Pancreato Biliary (HPB) Cancer Network Clinical Advisory Group

Clinical Guidelines

June 2023

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VERSION CONTROL

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1.7	9th May 2018	Update incorporating NICE clinical guideline NG85 recommendation for staging with PET-CT	Jonathan Rees
1.8	28th October 2018	Inclusion of section on the management of hilar cholangiocarcinoma and the role of ERCP Spyglass	Jonathan Rees
1.9	8th May 2019	Amendment to section 3.6.3 on advice from Jim Portal	Jonathan Rees
2.0	3rd June 2019	Update of section 2.8	Newton Wong
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2.2	21st June 2019	Addition of section 3.5.5: Hepatocellular carcinoma follow up. Finalised	P Collins
2.3	20th January 2022	Biennial update (delayed due to the COVID-19 pandemic)	
2.4	June 2023	Removal of signature table in line with sign off by the SWAG Cancer Alliance Lead	H Dunderdale

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UGI / HPB CAG Clinical Guidelines Contents

1. Introduction

The following guidelines pertain to the local management of oesophagus, stomach, pancreas, hepatocellular and gastrointestinal stromal cancers for the Somerset, Wiltshire, Avon and Gloucestershire (SWAG) Network UGI / HPB Oncology Clinical Advisory Group (CAG).

The SWAG CAG serves a population of 2.5 million.

The CAG refers to the National Institute for Health and Care Excellence (NICE) Upper GI and HPB Cancer clinical guidelines:

https://www.nice.org.uk/guidance

Primary care clinicians should refer to the NICE guidelines *Suspected Cancer: recognition and management of suspected cancer in children, young people and adults* (2015) for the signs and symptoms relevant when referring to UGI / HPB oncology services.

The CAG is committed to offering all eligible patients entry into clinical trials where available. Consent to provide tissue for research purposes will also be sought wherever appropriate.

2. Clinical Guidelines and pathways for the management of Upper GI malignancies (B11/S/a-16-006 / B11/S/a-16-007)

2.1 Local Referral Guidelines for Gastric Cancers

The referral guidelines between teams have been drawn up by the Upper GI site specialist group and are detailed in this section. These guidelines provide information about the referrals at three different stages of a Gastric Cancer.

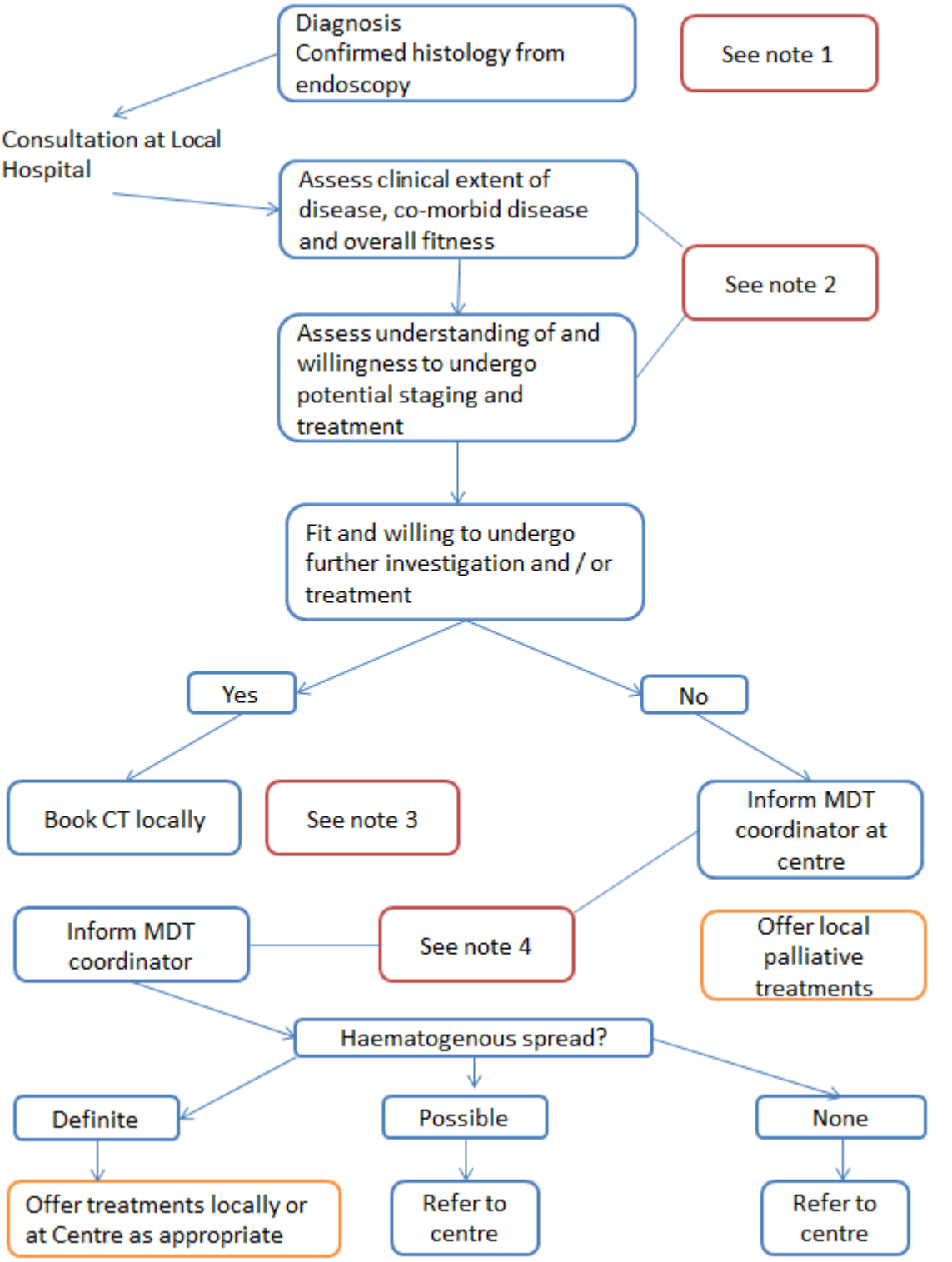
- Investigation with or without treatment at the Local Unit
- Treatment for unresectable tumours
- Investigation and Treatment at the Cancer Centre.

2.2 Gastric Carcinoma (Investigation with or without treatment at the Local Unit)

- All cases are discussed at the Local Unit MDT. Histology from endoscopy is confirmed, clinical findings and co-morbidities are discussed

- A member of the MDT and a Clinical Nurse Specialist (CNS) should assess the clinical extent of disease, co-morbidity, overall fitness, and the patient's understanding and willingness to undergo further investigations and potential treatment
- If the patient is fit and willing to pursue further treatment, then a staging CT scan is performed (at the local unit where possible)
- Where staging assessed by a Computer Tomography (CT) scan shows locally resectable disease, the patient should be referred to the central MDT
- Where CT assessment of resectability is equivocal, then the case should also be referred to the central MDT
- Where there is clear evidence of metastatic disease, levels of comorbidity or a patient's preference preventing potentially curative treatment, then palliative care options should be arranged. This should be locally where possible. The central MDT should be informed of these decisions
- Palliative care treatments will depend on the position of the tumour, extent of stomach involvement, patient symptoms, fitness and wishes
- In addition to supportive care, palliative treatments might include chemotherapy, radiotherapy (for bleeding), endoluminal stenting (for outlet obstruction), bypass surgery or resection
- The central MDT should be involved if further discussion of palliative care options is required.

Gastric Carcinoma (Investigation with or without treatment at the local unit) Flow Chart



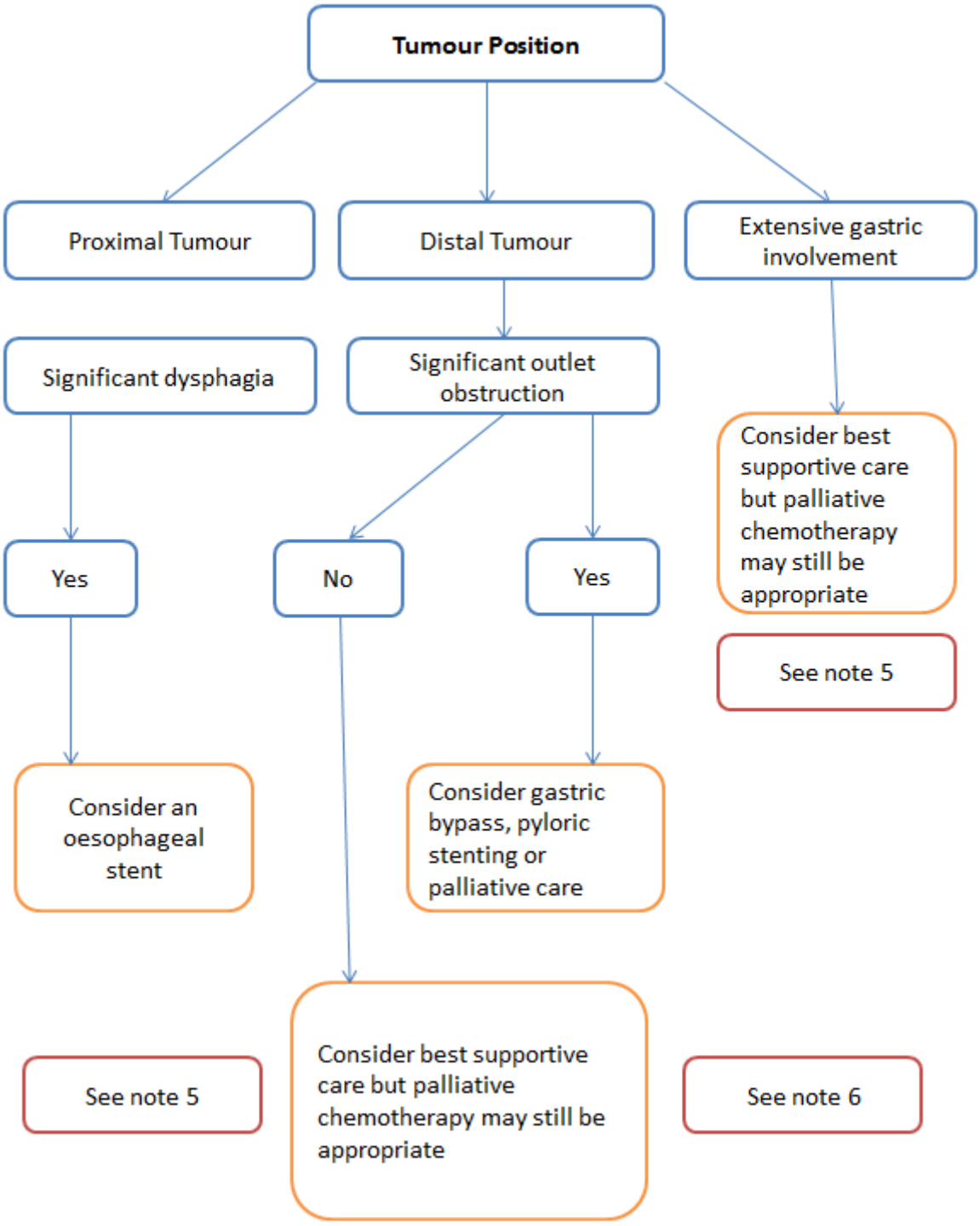
2.3 Gastric Carcinoma: Treatment for Unresectable Tumours

- All patients should meet with a CNS and palliative care team to discuss needs, wishes and plan best supportive care
- Palliative chemotherapy should be considered if the patient is well enough and willing
- Where tumours cause significant obstructive symptoms, endoluminal stenting will be considered; either oesophageal for proximal tumour involving the gastro-oesophageal junction, or pyloric/duodenal for distal tumours
- If pyloric/duodenal stenting is not possible or available, bypass surgery or a palliative resection will be considered if patient is well enough and willing
- Where chronic blood loss is difficult to control with PPI therapy, radiotherapy or endoluminal ablative therapies (argon plasma coagulation, ethanol injection or electro-coagulation) will be considered
- Assess nutritional requirements in each circumstance. Where appropriate this might include nasojejunal, gastrostomy or jejunostomy tube feeding.

Other potential problems

Symptomatic Bleeding	PPI +/- Endoscopic treatment
	PPI +/- Radiotherapy
Nutrition	Naso-jejunal
(tailored to circumstances)	PEG (for proximal tumours)
Jejunostomy	

Gastric Carcinoma for Unresectable Tumours Flow Chart



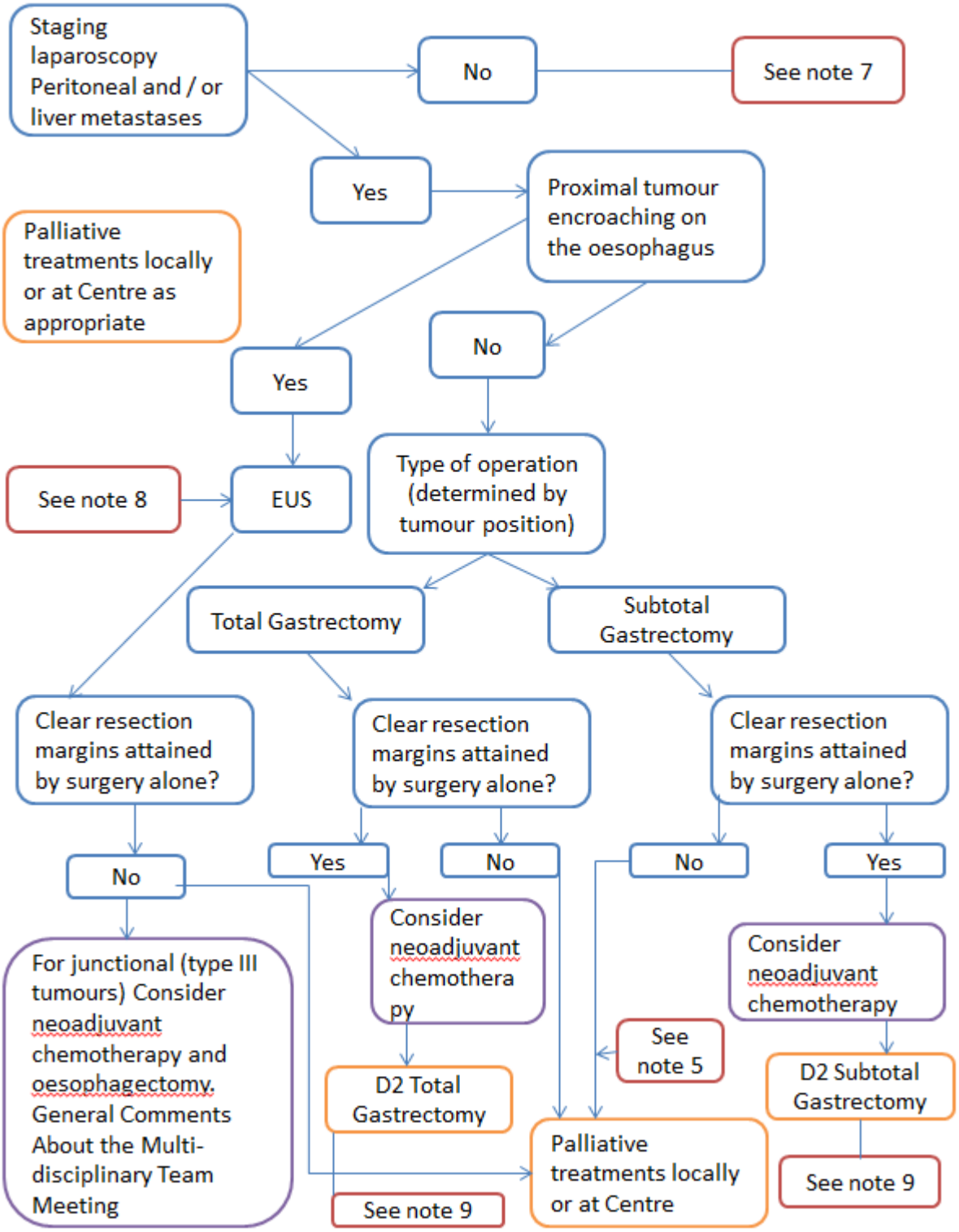
2.4 Gastric Carcinoma: Investigation and Treatment at the Cancer Centre

Where patients have CT evidence of localised disease and they are fit enough and willing to undergo further treatment (or if there is any doubt regarding resectability) then the case is referred and discussed at the Centre MDT and further investigations are arranged.

Further investigation might involve:

- Staging laparoscopy to look for evidence of metastatic disease (peritoneal or hepatic) or extensive local invasion. If present then treatment is subsequently palliative
- Endoscopic Ultrasound is used to assess involvement of the gastro-oesophageal junction and type of operation needed to achieve complete resection. This might be subtotal oesophagectomy or total gastrectomy
- EUS may also be used to assess local nodal involvement, local resectability and degree of mucosal invasion in early gastric cancer
- For locally advanced, but resectable gastric cancer consider neoadjuvant chemotherapy.

Gastric Carcinoma: Investigation and Treatment at the Cancer Centre Flow Chart



- All new patients should be discussed at their local MDT
- If the patients are suitable for referral to the Cancer Centre, then their case will be discussed at the weekly held central MDT
- All new patients referred to the centre will have their histology reviewed by specialist GI pathologists and the result documented
- All newly referred patients from the cancer units will need their CT scans and reports sent to the MDT
- Specialist GI radiologists will review the CT scans
- It is expected that all new patients discussed at the central MDT will have been seen by an MDT member to present their case and inform the MDT of the patient's ability to undertake any proposed treatment
- A letter documenting the MDT decisions will be produced and faxed/emailed to the GP and referring clinicians within 48 working hours
- The list of all the MDT decisions will be circulated electronically to the MDT members after the meeting
- The Centre should be notified of all patients with a diagnosis of oesophago-gastric cancer (Upper GI cancer Peer Review standard)
- The Somerset Cancer Register should be used to capture real time MDT information for use across the network.

2.5 Gastric Cancer Management Flowchart Notes

2.5.1 Note 1: Standard of Upper GI Endoscopy

- A minimum of six biopsies should be obtained whenever size of the lesion permits
- Any other visible lesion should be biopsied
- The distance from the incisor teeth to the upper and lower margins of the tumour should be recorded
- The position of the tumour within the stomach should be noted and involvement of lesser or greater curve and anterior or posterior wall of the stomach documented
- The position of the squamo-columnar and oesophago-gastric junctions should be recorded and whether the tumour encroaches on the lower oesophagus
- A macroscopic description of the tumour (including type of early gastric cancer if appropriate) should be included
- A photograph, if available, will help in tumour localisation.

2.5.2 Note 2: Patient Assessment

- History and examination to assess clinical extent of disease, co-morbid disease and overall fitness (see Supplementary Notes on Patient Risk stratification)
- Inform patient of diagnosis and introduce them to the local Clinical Nurse Specialist
- Inform General Practitioner that the patient has been told their diagnosis within the next 24 hours (Peer Review standard)
- After explanation of condition, assess patient understanding and willingness to undergo further staging and treatments.

2.5.3 Note 3: Standard of CT

- Most patients will require a CT scan for disease staging
- The CT scan should include chest and abdomen views and be performed with oral and intravenous contrast (see supplementary note on CT imaging technique).

2.5.4 Note 4: Informing MDT Co-ordinator

- If the patient elects not to undergo further investigation and to have local palliative treatments, inform the MDT co-ordinator using the referral proforma (sent by fax/email) which should include reasons for not performing further staging investigations. Include the palliative treatment planned. This data will provide audit information for the ASW cancer network
- If the patient does elect to have further staging investigations, inform the MDT co-ordinator using the referral proforma (fax/email). Include date of CT scan so a provisional date for MDT discussion can be arranged.

2.5.5 Note 5: Palliative Treatments

- Palliative treatments for gastric malignancy will depend on the position of the tumour, extent of stomach involvement, patient symptoms and wishes, and their overall fitness
- While total gastrectomy for palliation is rarely appropriate, a distal gastrectomy for outlet obstruction may offer effective symptom relief.

2.5.6 Note 6: Referral to the Cancer Centre

- Refer patients who are fit and willing to undergo attempts at curative treatment and have no evidence of disseminated disease. Also, refer patients if there is uncertainty about either their fitness and/or evidence of disease dissemination, or if the patient requests a second opinion
- Discuss with the patient the diagnosis and the reasons for referral to the Cancer Centre so that they are aware of the reasons for further investigations and treatment away from the local hospital
- Patients should be seen by the local Clinical Nurse Specialist before referral so that treatment co-ordination and future patient support can be facilitated between the Cancer Centre and the local hospital
- In order to meet cancer investigation and treatment waiting times there is weekly access to a cancer clinic at the BRI and RUH. Patients being considered for radical treatment will be clinically assessed and given an explanation of the planned treatment by a consultant surgeon. Each patient is discussed at the central MDT and EUS and staging laparoscopy will be arranged if appropriate
- If the patient is from the centre (BRI) they will be seen in the clinic on a Monday, have a CT on the Tuesday, an EUS (if appropriate) on the Wednesday and a staging laparoscopy on the next available list
- For those patients deemed not suitable for care by the specialist team following MDT discussion and or investigation by the specialist MDT, liaison with the referring organisation will be undertaken and provision put in place to ensure onward management by the local team. Outpatient review by the specialist team to discuss findings with the patient can be undertaken if required. Additional discussion at the specialist MDT can be arranged at any point should this be required.

2.5.7 Note 7: Standard of Staging Laparoscopy

Usually, staging laparoscopy is performed for all gastric malignancy (excluding endoscopic early gastric cancer) unless operative bypass or limited resection is needed for gastric outlet obstruction. This can take place at the Cancer Centre or at Base hospital if the local Upper GI surgeon is willing. During the procedure carefully examine the peritoneal cavity for metastases (including ovaries if appropriate). Examine both lobes of the liver and enter the lesser sac through the lesser omentum to view the caudate lobe and lesser sac. Examine the tumour extension onto the oesophagus, look for serosal involvement and assess oesophageal and cardial mobility. Look for ascites and biopsy any suspicious lesions. Lift the transverse colon to examine the mesocolon and look for any

evidence of invasion from posterior wall tumours. Consider intraoperative gastroscopy if there is insufficient data on size and position of tumour. Finally run a quantity of Saline or Hartmann's solution into the peritoneal cavity

and aspirate a sample for cytological examination.

2.5.8 Note 8: Endoscopic Ultrasound

If the endoscopy and/or the CT suggests proximal disease encroaching on the oesophagus, a provisional date for an EUS will have been arranged following initial contact with the MDT co17perabili. EUS will determine T and N stage of tumour and, in addition, it will assess the extent of oesophageal involvement. Significant oesophageal involvement will make total gastrectomy an inadequate operation for cure. In this circumstance two phase oesophagectomy or colonic interposition may be necessary to achieve adequate surgical resection margins.

2.5.9 Note 9: Treatment

- All patients that fulfil criteria for entry into clinical trials will be offered participation
- Curative surgical treatment for all advanced tumours will be either D2 total gastrectomy or D2 sub-total gastrectomy (depending on the site of the tumour)
- Neoadjuvant chemotherapy should be offered if recommended by MDT discussion
- Early gastric cancer (HGD or Tis, T1) may be cured by endomucosal resection.

2.5.10 Note 10: Post treatment follow-up

- After surgery, histopathological findings are discussed at the central MDT. Any adjuvant therapy can then be discussed and planned
- After surgery or primary chemo/radiotherapy (as sole treatment), initial patient follow-up will be at the Centre
- Outside of clinical trials, patients will be referred back to the local base hospital for continued follow-up once post treatment complications have settled (see **Network 'Follow-up guidelines'**)
- The MDT co-ordinator will liaise with the local Clinical Nurse Specialist to hand over the continued patient care

2.6 Referral Guidelines for Oesophageal Cancers

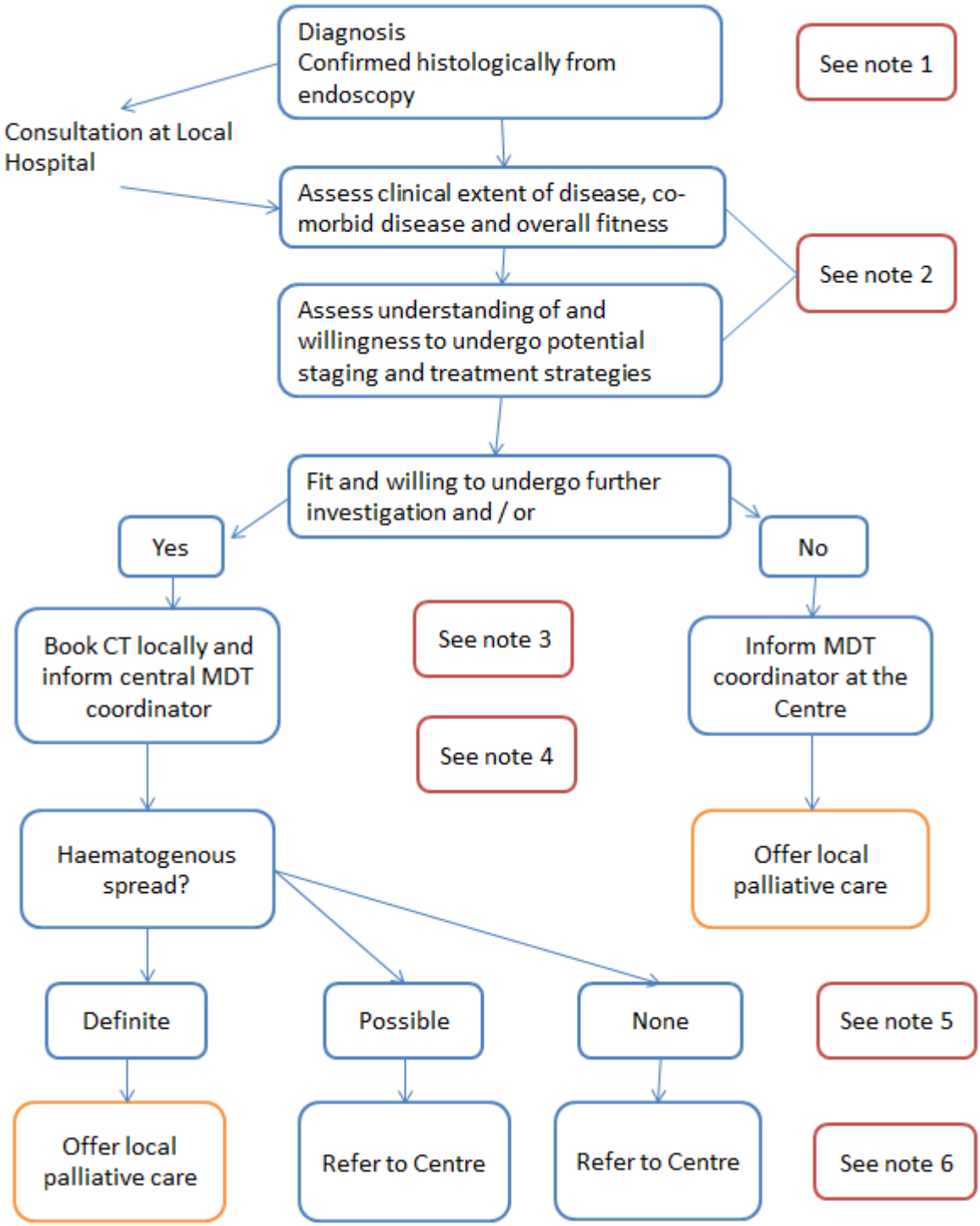
2.6.1 Oesophageal Carcinoma: Investigation with or without treatment at the local Cancer Unit

- All cases are discussed at the local unit MDT. Histology from endoscopy is confirmed, clinical findings and co-morbidities discussed
- A member of the MDT should assess the clinical extent of disease, co-morbidity and overall fitness, as well as the patient's understanding and willingness to undergo further investigation and potential treatment
- Patients should meet the local Clinical Nurse Specialist
- If fit and willing to pursue further treatment, then a staging CT scan is performed (at the local unit where possible)
- Where CT staging shows locally resectable disease, then the case should be referred to the central MDT
- Where CT assessment of resectability is equivocal, then the case should also be referred to the central MDT
- Where there is clear evidence of metastatic disease, levels of co-morbidity or a patient's preference

preventing potentially curative treatment, then palliative care options should be arranged. This should be locally where possible. The central MDT should be informed of these decisions

- Palliative care treatments will depend on the position of the tumour, degree of dysphagia, patient symptoms, nutritional status, fitness and wishes
- In addition to supportive care, palliative treatments might include endoluminal stenting, chemotherapy or radiotherapy
- The central MDT should be involved if further discussion of palliative care options is required.

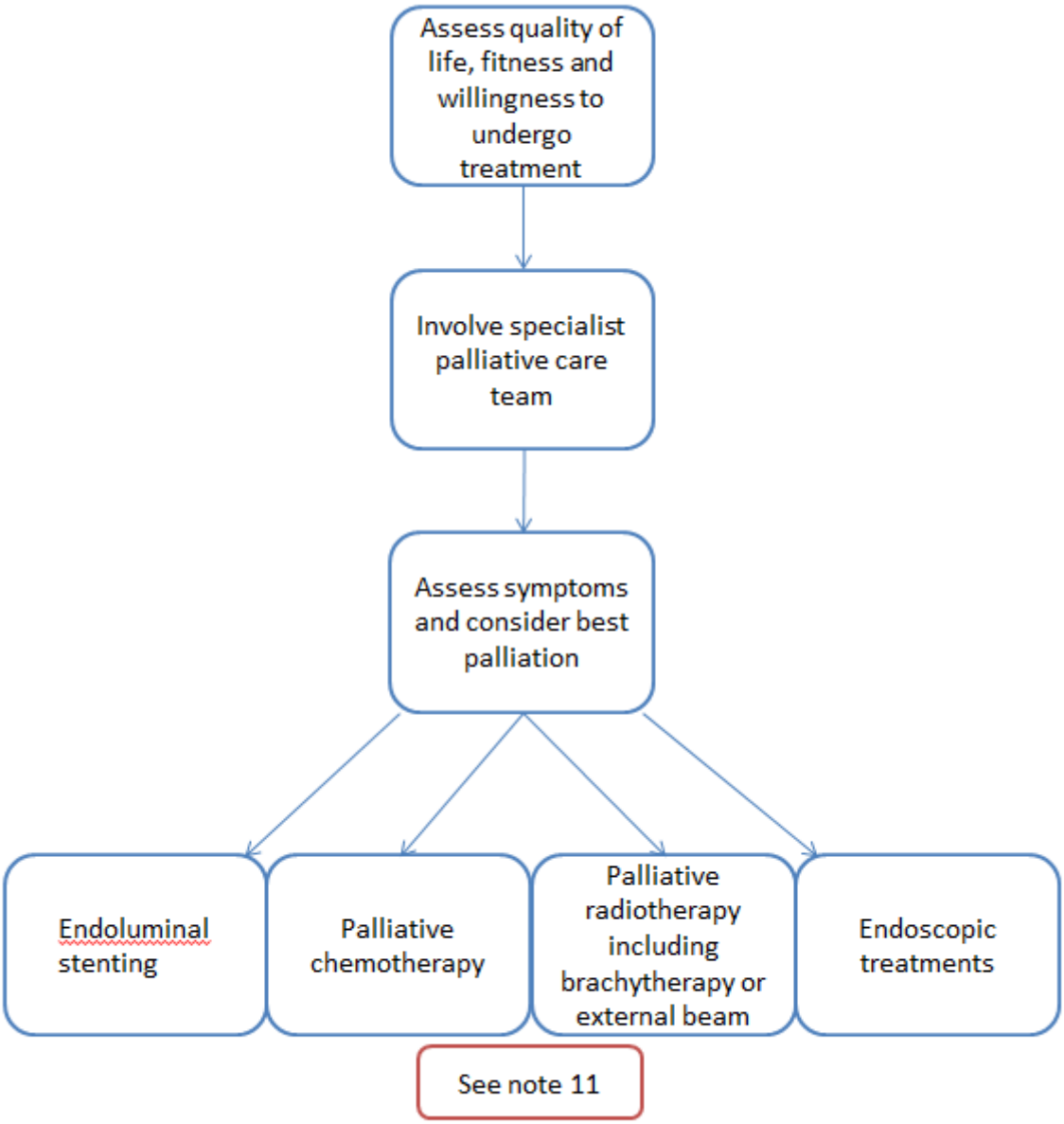
Oesophageal Carcinoma: Investigation with or without treatment at local Cancer Unit Flow Chart



2.6.2 Oesophageal Carcinoma: Treatment for Unresectable Tumours

- All patients should meet a Clinical Nurse Specialist and palliative care team to discuss needs, wishes and plan best supportive care
- Consider palliative chemotherapy if patients are managing sufficient nutritional intake, fit enough and willing
- Where tumours cause significant dysphagia (such that nutritional intake is severely limited), then consider endoluminal stenting. In such cases palliative chemotherapy is poorly tolerated and is unlikely to improve prognosis or symptoms
- Consider palliative chemo-radiation if patients have localised (but unresectable) disease; where dysphagia is minimal, there is sufficient nutritional intake, and patients are fit enough and willing.
- Assess nutritional requirements in each circumstance. In most cases this is an indication for endoluminal stenting. Rarely, alternative feeding may be appropriate such as nasojejunal, gastrostomy or jejunostomy tube feeding.

Oesophageal Carcinoma: Treatment for Unresectable Tumours Flow Chart

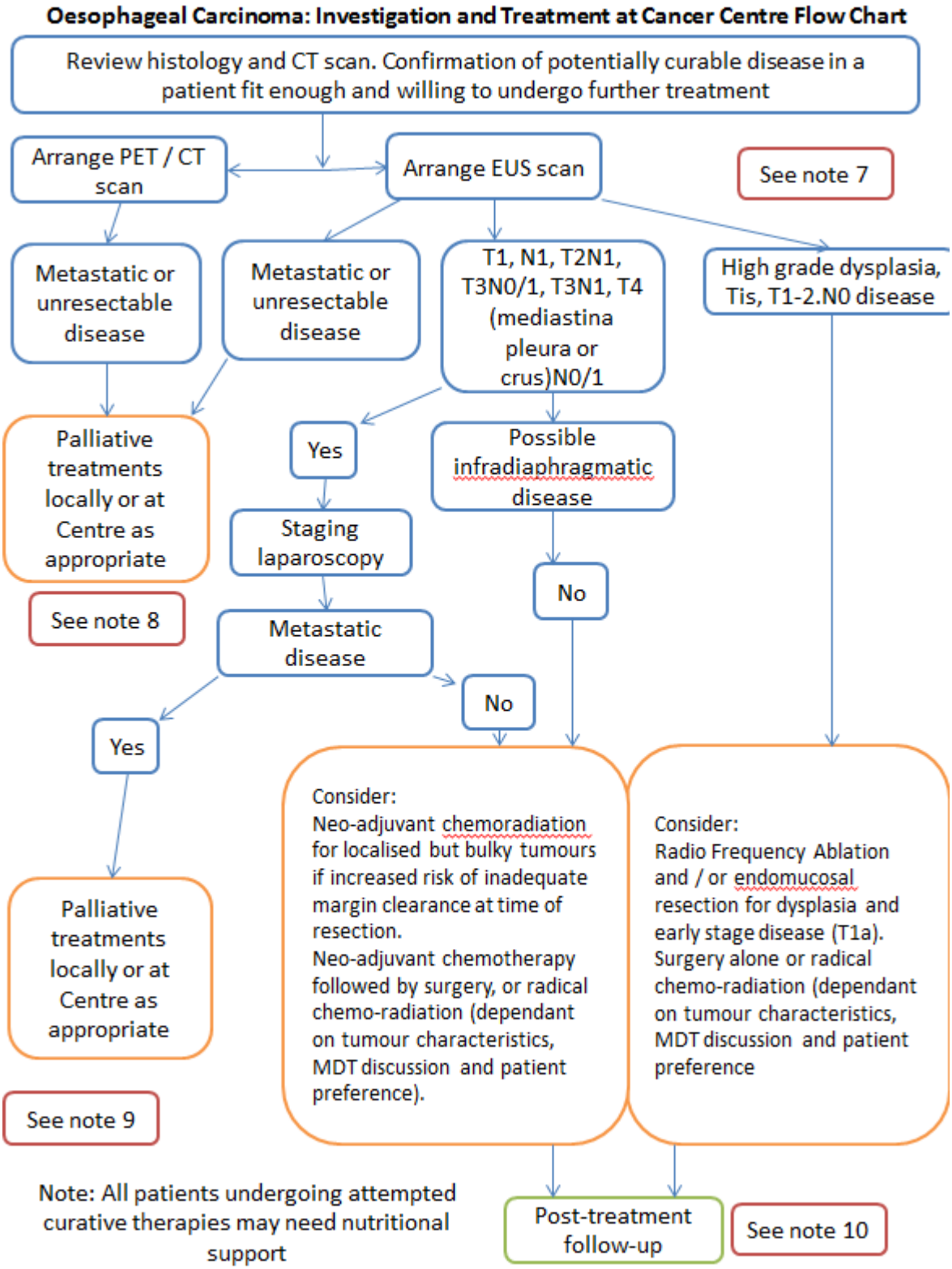


2.6.3 Oesophageal Carcinoma: Investigation and Treatment at Cancer Centre

Where patients have CT evidence of localised disease and are fit and willing to undergo further treatment (or if there is any doubt regarding resectability) then the case is referred to and discussed at Centre MDT and further investigation arranged.

Further investigation might involve:

- Endoscopic Ultrasound is used to assess the position of the tumour (and relationship to oesophagogastric junction), dimensions of the tumour, its length, T stage and local nodal involvement, and relationship to other mediastinal structures (pleura, arch of aorta, airway)
- PET/CT scan is used to look for metastatic disease that may not have been detected on conventional CT scan, as well as assess indeterminate abnormalities detected on conventional CT scan
- Staging laparoscopy is used to examine the abdominal cavity where tumours involve the gastro-oesophageal junction or reach the level of the diaphragm, looking for evidence of metastatic disease (peritoneal or hepatic) or extensive local invasion. If present then treatment is subsequently palliative
- Bronchoscopy is occasionally used if there is suspicion of local airway involvement with tumour.
- Staging evaluation is discussed and co-ordinated through the specialist MDT at UHB. Patients and other clinicians involved with patient care are kept informed through correspondence and contact with their CNS
- Potentially curative treatments are recommended after discussion at specialist MDT. The final staging, tumour position and patient's wishes guide the choices. The potentially curative treatments include:
    - Surgical resection without neoadjuvant chemotherapy. This is usually a subtotal oesophagectomy and two-field lymphadenectomy. This would be for High Grade Dysplasia, T1N0 or T2N0 disease. The surgical technique may be open or minimally invasive
    - Neoadjuvant chemotherapy followed by surgical resection. For stages T1 N1, T2 N1, T3 N0, and T3 N1. Also T4 tumours that involve only the diaphragm or crura or invade only the mediastinal pleura
    - Chemo-radiation. This can be considered for T1-3, N0-1 disease that is confined to the mediastinum only, also T4 tumours that invade mediastinal pleura only. Such treatment is less effective where disease involves subdiaphragmatic oesophagus and/or nodes.



2.6.4 General Comments About the Multi-disciplinary Team Meeting

- All new patients should be discussed at their local MDT
- If the patients are suitable for referral to the Cancer Centre then their case will be discussed at the weekly

held central MDT

- All new patients referred to the centre will have their histology reviewed by specialist GI pathologists and the result documented
- All newly referred patients from the cancer units will need their CT scans and reports sent to the MDT. Specialist GI radiologists will review the CT scans
- It is expected that all new patients discussed at the central MDT will have been seen by an MDT member to present their case and inform the MDT of the patient's ability to undertake any proposed treatment
- A letter documenting the MDT decisions will be produced and faxed/emailed to the GP and referring clinicians within 48 working hours
- The list of all the MDT decisions will be circulated electronically to the MDT members after the meeting
- The Centre should be notified of all patients with a diagnosis of oesophago-gastric cancer (Upper GI cancer Peer Review standard).

2.6.5 Oesophageal Cancer Management Flowchart notes

2.6.5.1 Note 1: Standard of Upper GI Endoscopy

- A minimum of six biopsies should be obtained whenever size of the lesion permits
- Any other visible lesion should be biopsied
- The distance from the incisor teeth to the upper and lower margins of the tumour should be recorded
- Presence of any Barrett's mucosa should be documented and the upper limit measured
- The position of the squamo-columnar (or oesophago-gastric junction if Barrett's present) should be recorded
- The extent of gastric involvement should be recorded.

2.6.5.2 Note 2: Patient Assessment

- History and examination to assess clinical extent of disease, co- morbid disease and overall fitness (see **Supplementary Notes on Patient Risk stratification**)
- Inform patient of diagnosis and introduce them to the local Cancer Nurse Specialist
- Inform General Practitioner that the patient has been told their diagnosis within the next 24 hours (Peer Review standard)
- After explanation of condition assess patient understanding and willingness to undergo further staging and treatment strategies.

2.6.5.3 Note 3: Standard of CT

- Most patients will require a CT scan for disease staging
- The CT scan should include chest and abdomen views and be performed with oral and intravenous contrast (see supplementary note on CT imaging technique).

2.6.5.4 Note 4: Informing MDT Co-ordinator

If the patient elects not to undergo further investigation and to have local palliative treatments inform the MDT co-ordinator, using the referral proforma (sent by fax/email) which should include reasons for not performing further staging investigations. Include on the proforma the palliative treatment planned. This data will provide audit information for the ASW cancer network

If the patient does elect to have further staging investigations inform the MDT co-ordinator using the referral proforma (fax/email) which should include the date of the CT scan so that the patient can be discussed at the

central MDT and the CT scan can be reviewed. A provisional date for a EUS and PET/CT can be arranged.

2.6.5.5 Note 5: Referral to the Cancer Centre

- Refer patients who are fit and willing to undergo attempts at curative treatment and have no evidence of disseminated disease. Also refer patients if there is uncertainty about either their fitness and/or evidence of disease dissemination or if the patient requests a second opinion
- Discuss with the patient the diagnosis and the reasons for referral to the Cancer Centre so that they are aware of the reasons for further investigations and treatment away from the local hospital
- Patients should be seen by the local CNS before referral, so that treatment co-ordination and future patient support can be facilitated between the Cancer Centre and the Local hospital
- For those patients deemed not suitable for care by the specialist team following MDT discussion and or investigation by the specialist MDT, liaison with the referring organisation will be undertaken and provision put in place to ensure onward management by the local team. Outpatient review by the specialist team to discuss findings with the patient can be undertaken if required. Additional discussion at the specialist MDT can be arranged at any point should this be required.

2.6.5.6 Note 6: Fast Track Pathway

In order to meet cancer investigation and treatment waiting times there is weekly access to a cancer clinic at the BRI and RUH. Patients being considered for radical treatment will be clinically assessed and given an explanation of the planned treatment by a consultant surgeon. Each patient is discussed at the central MDT and EUS and staging laparoscopy will be arranged if appropriate. If the patient is from the centre (BRI), they will be seen in the clinic on a Monday, have a CT on the Tuesday, a EUS (if appropriate) on the Wednesday, and PET/CT scan on Thursday, and, if needed, a staging laparoscopy on the next available list.

2.6.5.7 Note 7: Endoscopic Ultrasound and PET/CT scan

- EUS will have been arranged following initial contact with the MDT co-ordinator (see **note 4 and note 6**)
- EUS will determine T and N stage of tumour and, in addition, will assess unresectability due to direct invasion of vital structures (aorta, trachea etc). Full thickness disease communicating with the peritoneal cavity will prompt a staging laparoscopy to exclude peritoneal metastases
- T4 (involvement of surrounding organs) will usually indicate noncurative disease. In some situations however curative surgery may still be possible (for example if there is mediastinal pleural or crural involvement)
- PET/CT scan will be co-ordinated by the specialist MDT co24perabili
- PET/CT will show activity related to enhanced uptake of isotope by tumour cells. It is used to assess extent of disease and presence of metastatic disease.

2.6.5.8 Note 8: Standard of Staging Laparoscopy

- Perform staging laparoscopy for full thickness disease encroaching on the peritoneal cavity (determined by CT scan and/or EUS)
- Can be performed at Cancer Centre or at the local hospital if local Upper GI surgeon is willing.

During the procedure, the peritoneal cavity will be carefully examined for the presence of metastatic disease (including ovaries if appropriate). Examine both lobes of the liver and enter the lesser sac through the lesser omentum to view the caudate lobe and crura. Examine the tumour extension onto the stomach, look for serosal involvement and assess oesophageal and cardia mobility. Look for any ascites and biopsy any suspicious lesions.

Finally run a quantity of Saline or Hartmann's solution into the peritoneal cavity and aspirate a sample for cytological examination.

2.6.5.9 Note 9: Treatment

- All patients that fulfil criteria for entry into clinical trials will be offered participation
- All other treatments are discussed with patients after MDT discussion.

2.6.5.10 Note 10: Post Treatment Follow-up

- After surgery or primary chemo/radiotherapy (as sole treatment) initial patient follow-up will be at the Centre
- Outside of a clinical trial, patients will be referred back to the local base hospital for continued follow-up once post-treatment complications have settled (see **Network 'Follow-up guidelines'**)
- The MDT co-ordinator or Centre Cancer Nurse specialist will liaise with the local Cancer Nurse Specialist to hand over continued patient care.

2.6.5.11 Note 11. Palliative Treatments

- Palliative treatments will include oesophageal stenting for significant dysphagia, chemotherapy, radiotherapy and endoscopic ablative treatments. These will be discussed at the MDT and offered to the patient as appropriate
- Some patients will elect for, or be only suitable for, supportive treatments such as palliative care.

2.7 Imaging Guidelines

2.7.1 Introduction

This document covers the imaging protocols for oesophageal, oesophageal- gastric, gastric and pancreatic-biliary cancers in the Avon and Somerset Cancer Network. The mainstay of staging remains CT scanning although, as all centres have access to multislice CT technology, the basic imaging parameters have changed. There is also the inclusion of CT PET in the staging pathway for oesophageal and oesophago-gastric cancers.

The patients for whom surgery is contemplated are discussed at the Network MDT and we insist on the core imaging data to be available via the Net or CD to import into the Aquarius Net system within the MDT room. The Aquarius Net system is a 3D manipulation software programme which allows us to review all imaging in the axial, coronal and sagittal plane. In addition, the MDT is a review not a reporting meeting, and so we insist on the formal radiological reports being available for us to review at the time of the MDT.

2.7.2 Imaging Parameters, Staging of Oesophageal, Oesophageal Gastric and Gastric Cancers

Oesophageal and Oesophago-gastric Cancer.

Once the diagnosis is confirmed the patient is referred for a staging CT examination.

Staging CT:
Water is used as the oral contrast medium.

Imaging parameters:

- Plain liver acquisition: Evidence is non- specific about the use of this imaging and this is left to the

discretion of the local unit

- Post IV contrast acquisition of the chest and upper abdomen: a post IV contrast acquisition of the chest and upper abdomen is performed. The liver is examined in the portal venous phase of contrast enhancement to maximise the detection of liver metastasis, which is approximately 60-70 seconds. Thin cut acquisition is undertaken and the slices range between 1mm and 3mm depending on the individual machine capability.

Staging CT PET:

All patients with oesophageal and oesophageal gastric cancer who have undergone a staging CT scan of the chest and upper abdomen which does not demonstrate extensive or obvious metastatic disease in the lung or liver, are referred for further staging with a CT PET scan.

Imaging parameters:

Routine half body scan (orbits down to thighs). 2D Acquisition PET. Low dose CT for attenuation correction and anatomical localisation is performed. The scans are reported by two radiologists; one who has a PET-CT reporting licence and one who attends the MDT for that cancer specific group.

Gastric Carcinoma

Once the diagnosis is confirmed the patient is referred for a staging CT examination.

Staging CT:

Water is used as the oral contrast medium.

Imaging parameters:

- Plain liver acquisition: Evidence is non-specific about the use of this imaging and this is left to the discretion of the local unit
- Post IV contrast acquisition of the chest and upper abdomen: a post IV contrast acquisition of the chest and upper abdomen is performed. The liver is examined in the portal venous phase of contrast enhancement to maximise the detection of liver metastasis, which is approximately 60-70 seconds. Thin cut acquisition is undertaken and the slices range between 1mm and 3mm depending on the individual machine capability.

Staging CT PET:

Staging CT-Pet is not used routinely in patients with gastric cancer.

Follow Up Imaging

Oesophago-gastric and Oesophageal tumours

A further CT scan is undertaken and reviewed at the MDT when the patient has undergone pre-surgical chemotherapy.

Where possible follow up CT scans should be performed at the same centre as initial diagnostic scanning. Usually

this is more convenient for patients and improves ability to make comparisons between scans.

2.7.3 Imaging Parameters, Staging of Pancreatic, Biliary and Gallbladder Cancer

Pancreatic Carcinoma

For patients where pancreatic carcinoma is clinically suspected a diagnostic and staging CT can be performed as a single examination. These patients can present via a variety of clinical routes, including a mass noted in the head of the pancreas on ultrasound, painless jaundice or non-specific back pain.

Diagnostic and staging CT Pancreas:

Water is used as the oral contrast medium.

Imaging parameters:

- A plain CT scan of the upper abdomen is performed to identify pancreatic calcification
- Post IV contrast acquisition. Two further scans are performed of the upper abdomen. The first acquisition is during the pancreatic phase of contrast enhancement. This occurs 30 seconds post injection. This phase is best for identifying pancreatic lesions
- The second phase is during the portal venous phase of liver enhancement, 55 second post injection is performed. Thin cut acquisition is undertaken and the slices range between 1mm and 3mm depending on the individual machine capability
- A CT scan of the chest is also undertaken and metastases can be present in up to 12% of patients
- The data is made available for the MDT via CT net report into Aquarius Net and the images are reviewed at the MDT in 3 coronal planes. This is vital to establish the relationship of the tumour to the vessels and hence determine operability.

Endoscopic Retrograde Cholangiopancreatography

Review of the ECRP images are undertaken and further support the CT assessment.

Biliary Tumours

Biliary tumours can be difficult to both diagnose and stage and often are identified in patients presenting with obstructive jaundice. These patients have often undergone an ultrasound which has demonstrated proximal common bile duct dilatation. Distal bile duct tumours will mimic pancreatic carcinoma. If there is a suspicion of a bile duct tumour the patient is referred for a diagnostic and staging CT and also often for a Magnetic Resonance Chholangiopancreatography scan (MRCP)

Diagnostic and staging CT Bile duct tumours:
Water is used as the oral contrast medium.
Imaging parameters:

- A plain CT scan of the upper abdomen is performed to identify possible calculi within the biliary tree
- Post IV contrast acquisition. Two further scans are performed of the upper abdomen. The first acquisition is during the pancreatic phase of contrast enhancement. This occurs 30 seconds post injection. This phase is best for identifying pancreatic lesions
- The second phase is during the portal venous phase of liver enhancement, 60-70 second post injection is performed. Thin cut acquisition is undertaken and the slices range between 1mm and 3mm depending on

the individual machine capability
- A CT scan of the chest is also undertaken
- The data is made available for the MDT via CT net report into Aquarius Net and the images are reviewed at the MDT in 3 coronal planes. This is vital to establish the relationship of the tumour to the vessels and hence determine operability.

Endoscopic Retrograde Cholangiopancreaticogram (ERCP):

Review of the ECRP images are undertaken and further support the CT assessment.

Gall Bladder Carcinoma

Gallbladder carcinoma often presents post cholecystectomy when a small cancer has been identified via histology, or following a routine ultrasound when a mass has been identified in the gallbladder. In both cases the patient is referred for a staging CT scan.

The data is made available for the MDT via CT net report into Aquarius Net and the images are reviewed at the MDT in 3 coronal planes.

Staging CT Scan

Water contrast is used as the oral contrast medium.

Imaging parameters

- A plain CT scan of the upper abdomen is performed to identify possible calculi within the biliary tree
- Post IV contrast acquisition. Post contrast acquisition is performed during the portal venous phase of contrast enhancement. Thin cut acquisition is undertaken and the slices range between 1mm and 3mm depending on the individual machine capability
- A CT scan of the chest is also undertaken
- The data is made available for the MDT via CT net report into Aquarius Net and the images are reviewed at the MDT in 3 coronal planes.

Staging CT PET

Staging CT-PET is not routinely used in patients with pancreatic, biliary and gallbladder carcinoma.

Follow Up Imaging

Pancreatic, biliary and gallbladder carcinoma.

Routine follow up is not undertaken; however follow up is often performed as part of the criteria if the patient is entered into clinical trials.

Where possible, follow up CT or MRI scans should be performed at the same centre as initial diagnostic scanning. Usually this is more convenient for patients and improves the ability to make comparisons between scans.

2.8 GUIDELINES FOR PATHOLOGY – Updated Jun 2019 – by Dr Newton Wong (Southmead Hospital).

The network guidelines for the examination and reporting of upper gastrointestinal (GI) cancer specimens take into account the following publications:

1. Dataset for histopathological reporting of oesophageal carcinoma. 2nd ed. The Royal College of Pathologists, 2007.
http://www.rcpath.org/Resources/RCPath/Migrated%20Resources/Documents/G/G006OesophagealdatasetFINALFeb07.pdf
(Note that a new edition of this reference is expected later in 2019)

2. Dataset for histopathological reporting of gastric carcinoma. 2nd ed. The Royal College of Pathologists, 2007.
http://www.rcpath.org/Resources/RCPath/Migrated%20Resources/Documents/G/G013GastricDatasetFINALJan07.pdf
(Note that a new edition of this reference is expected later in 2019)

3. Dataset for the histopathological reporting of carcinomas of the pancreas, ampulla of Vater and common bile duct. 3rd ed. The Royal College of Pathologists, 2017.
https://www.rcpath.org/uploads/assets/34910231-c106-4629-a2de9e9ae6f87ac1/g091-pancreasdataset-mar17.pdf

4. Dataset for histopathology reporting of liver resection specimens (including gall bladder) and liver biopsies for primary and metastatic carcinoma. 2nd ed. The Royal College of Pathologists, 2012.
http://www.rcpath.org/Resources/RCPath/Migrated%20Resources/Documents/G/G050_LiverDataset_Jun12.pdf

5. Guidelines for the management of gastroenteropancreatic neuroendocrine (including carcinoid) tumours (NETs). British Society of Gastroenterology, 2012.
http://www.bsg.org.uk/clinical-guidelines/pancreatic/guidelines-for-the-management-of-gastroenteropancreatic-neuroendocrine-including-carcinoid-tumours-nets.html
(Note that the newest edition of the RCPath dataset for GI neuroendocrine tumours is expected later in 2019)

6. TNM classification of malignant tumours (8th edition). UICC, 2017

7. WHO Classification of Tumours of the Digestive System. 4th ed. IARC Press, 2010. (Note that a new edition of this reference is expected later in 2019)

All upper GI cancer cases are reviewed by an upper GI cancer multi-disciplinary (MDT) team which has a Histopathologist as a core member. However, other pathologists may run the upper GI MDT meetings provided they regularly report upper GI cancer specimens, and participate in an appropriate EQA scheme and in local upper GI audit.

Specimens should be reported within an agreed time frame so as to allow appropriate clinical decision making at a planned upper GI MDT meeting.

6.1 Specimen Types

Diagnostic specimens: Endoscopic upper GI biopsies, including ampullary and bile duct biopsies; liver and pancreatic biopsies; peritoneal biopsies; cytology, including peritoneal washings, endoscopic ultrasound or CT guided FNA preparations.

Therapeutic specimens: Endoscopic mucosal resection specimens, surgical resection specimens of the oesophagus, stomach, small intestine, liver, extrahepatic biliary tree, pancreas, and/or gallbladder.

6.2 Specimen examination

The local protocol for specimen examination should take into account national guidelines and should be regularly reviewed and updated by the lead upper GI pathologist(s) in consultation with other pathologists who participate in the service delivery.

6.3 Grading and staging of upper GI tumours

Tumour grading: WHO Classification of Tumours of the Digestive System (4th ed., 2010) (Note that a new edition of this reference is expected later in 2019)

Tumour staging: TNM classification of malignant tumours (8th edition). UICC, 2017

6.4 Use of ancillary laboratory techniques

All laboratories providing a pathology service in the network must have CPA accreditation and ensure participation in an appropriate EQA programme which demonstrates satisfactory laboratory performance.
A wide range of immunohistochemical markers are available within the network.

6.5 Audit

All pathologists reporting upper GI cancer specimens should participate in a relevant EQA scheme and local audits (including an assessment of consistency where more than one pathologist participates in service provision). The audits should include:

- Review of compliance with procedures for specimen examination and reporting
- Completeness of minimum datasets
- Diagnostic agreement/disagreement during review of cases for MDTs
- Review of diagnostic consistency between pathologists using data from cases in EQA circulation or blind circulations.

The results of the audit process should be discussed with all pathologists who participate in service delivery.

6.6 Minimum datasets for reporting:

Refer to the datasets for GI cancer histopathological reporting as published by the Royal College of Pathologists (see above).

2.9 Chemotherapy Protocols for Upper GI Cancers

The Network chemotherapy protocols can be found on the SWCN website here.

2.10 Follow up Guidelines

All patients undergoing surgery for oesophageal and pancreatic cancer at UHB will be offered follow up in a manner that suits their individual clinical and holistic needs. Initial follow up after surgery is intended to establish that patients have reached optimum physical recovery. This would likely involve appointments:

- Within six weeks of discharge at UHB
- Three months after operation
- Six months after operation
- Twelve months after operation.

During this time, patients and clinical teams are encouraged to discuss holistic needs and a long-term follow-up plan that suits patient's individual needs. This might be regular annual appointments, flexible appointments, telephone follow up (patient or CNS lead) or a combination. Patients are likely to be discharged from formal follow up after five years – but are encouraged to contact their CNS if any future concerns arise.

- Follow up appointments to be performed by upper gastrointestinal cancer team (consultants, registrars or specialist nurses)
- All patients have open telephone access to CNS support at any time. Explanatory Notes on the Follow Up Policy
- Patients may choose follow-up at UHB or locally. The cancer centre (UHB) will ensure that local hospitals have full information about operations, pathology and other relevant details
- Follow up in surgical clinics
- No routine imaging but, if symptomatic, investigations may be arranged
- Patients in clinical trials need to be followed up according to the trial protocol
- A copy of an agreed follow up schedule can be given to patients so that they are aware of the schedule of appointments
- Patients concerned about their symptoms should contact their specialist nurse, G.P. or the central MDT coordinators to arrange appropriate additional surgical follow-up.

2.11 Guidelines for the Management of Gastrointestinal Stromal Tumours (GIST)

Where investigation of UGI malignancy leads to referral to the central MDT and indicates the likelihood of a Gastrointestinal Stromal Tumour (GIST), the network has adopted the guidelines published by Robin Reid et al – 'Guidelines for the Management of Gastrointestinal Stromal Tumour (GISTs)' (18th August 2009) – as an aid to clinical management.

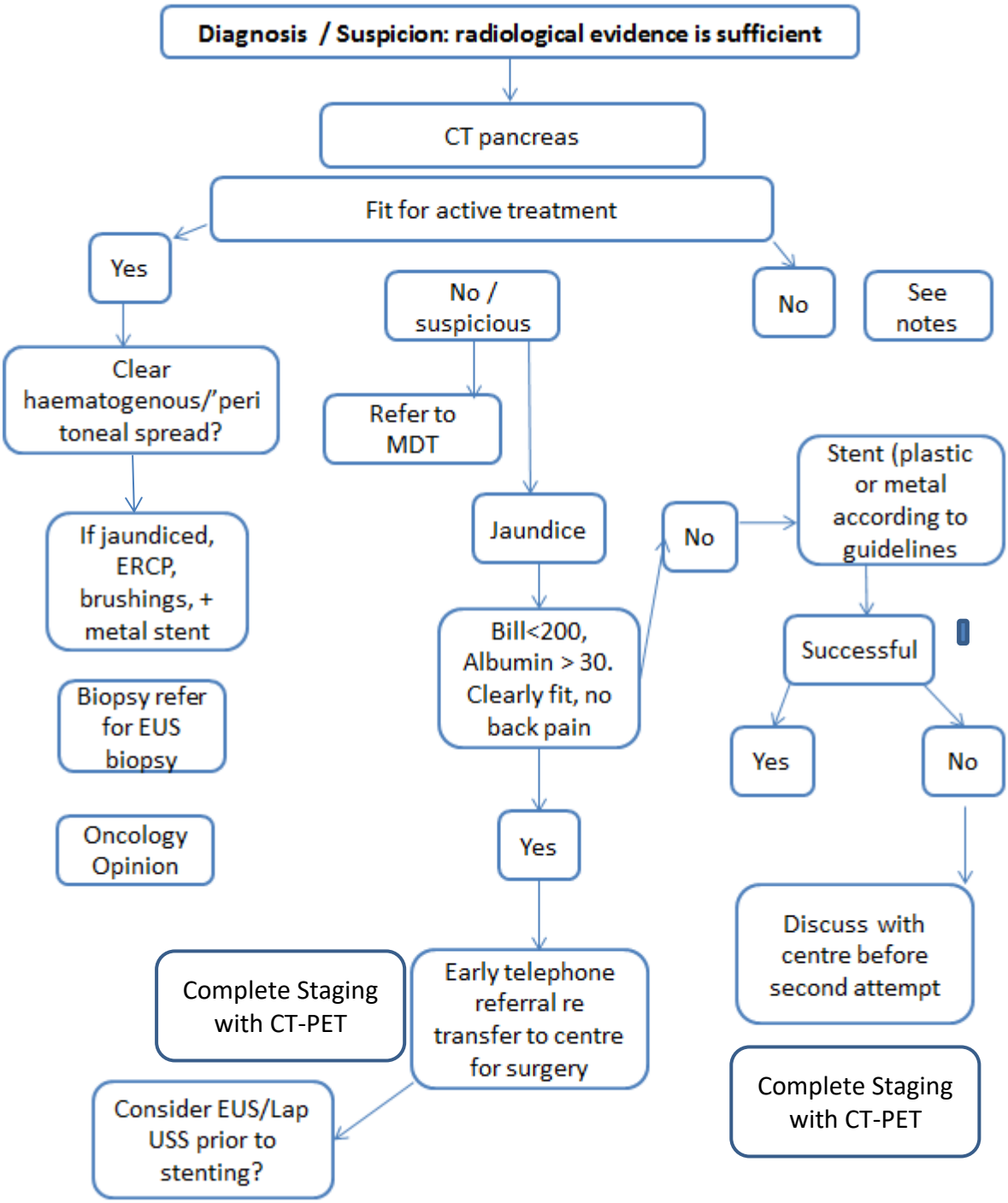
This document can be accessed at:

http://www.augis.org/wp-content/uploads/2014/05/GIST_Management_Guidelines_180809.pdf

3. Clinical Guidelines and pathways for the management of Hepato-Pancreato-Biliary Malignancies (A02/S/b-16-005 / A02/S/b-16-006)

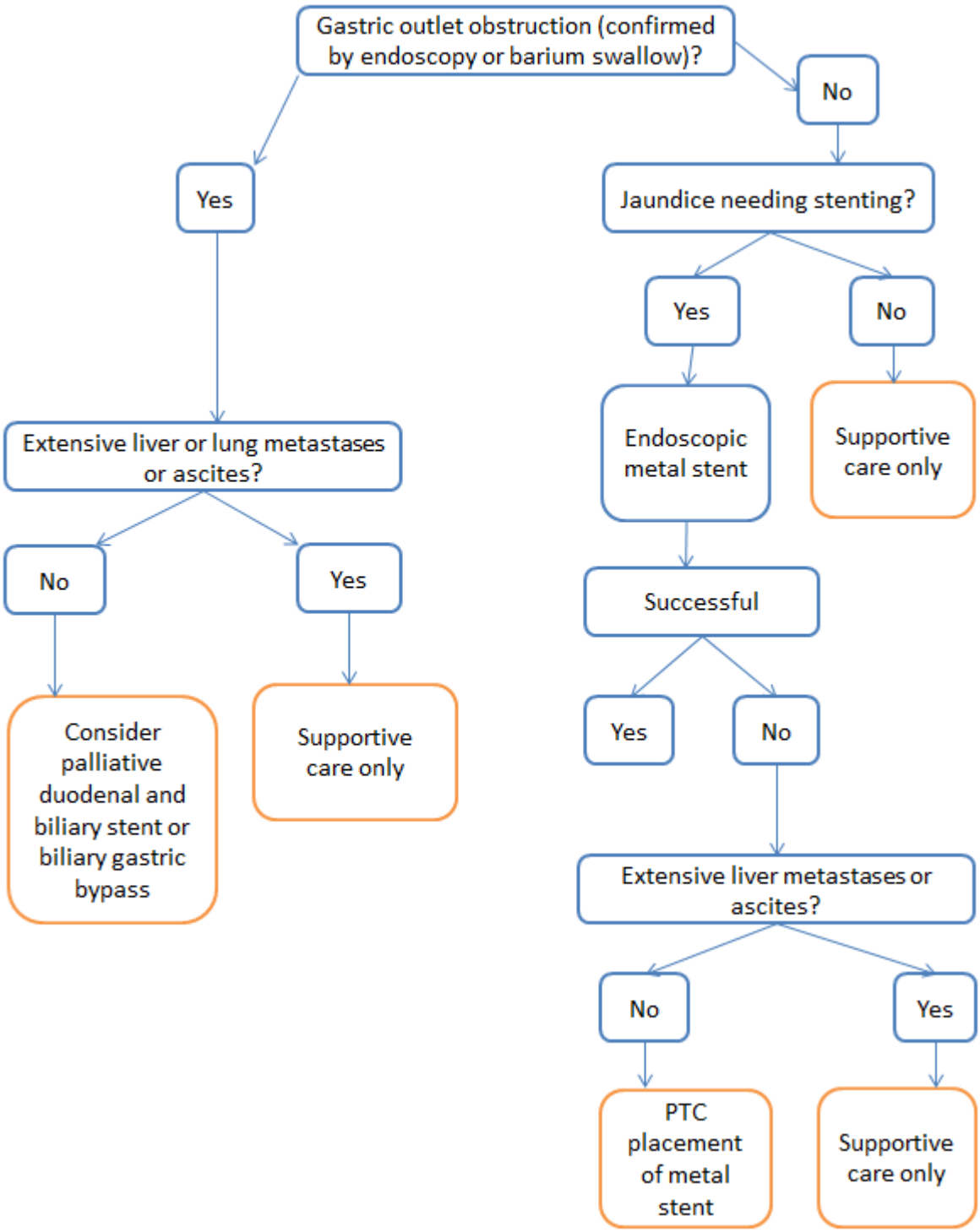
CAG refer to the International Consensus Guidelines 2012 for the Management of IPMN and MCN of the Pancreas, which can be found here, and the Hilar Cholangiocarcinoma Protocol which can be found here.

3.1 Pancreatic, periampullary and Distal Cholangiocarcinoma Referral Guidelines



3.2

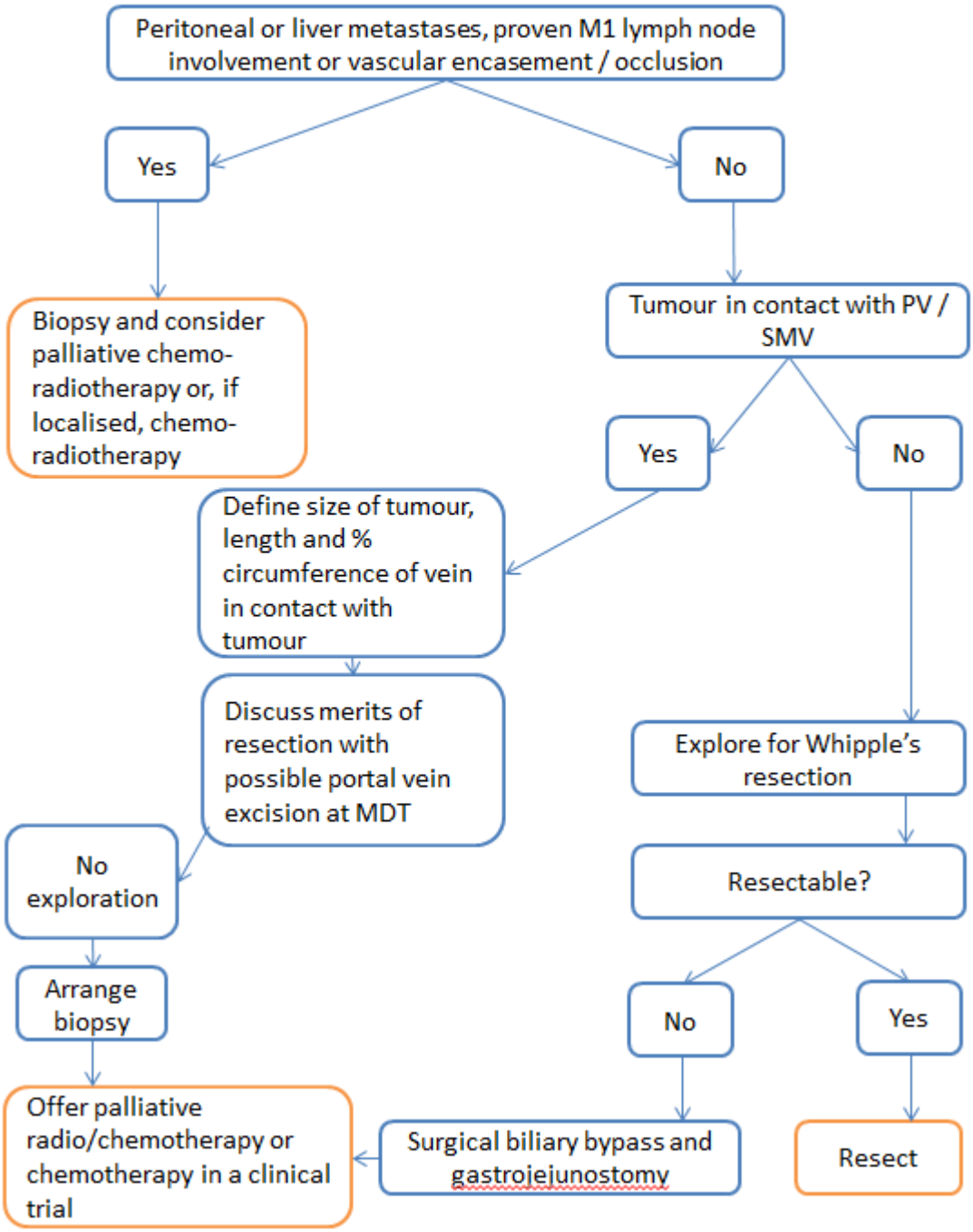
Pancreatic and Periampullary Carcinoma
Palliation for patients unfit for resection on oncological therapies



3.3

Pancreatic and Periampullary Carcinoma
Investigation and Treatment at the Cancer Centre Flow Chart

Staging Laparoscopy + laparoscopic ultrasound +/_ M1 lymph node biopsy



3.4 Notes for Pancreatic and Periampullary Cancer Referral Guidelines

3.4.1 Note 1: Guidance to accompany suspected pancreatic cancer referral flow chart

- Refer on obtaining a CT scan suggestive of cancer of the head of the pancreas / peri-ampullary area of the distal bile duct
- A CT should be performed prior to stenting, with the exception of septic unstable patients
- Referral should not be delayed whilst awaiting discussion by the local MDT for jaundiced or borderline resectable cases
- Ideally, referral should be made prior to stenting, although stenting can be scheduled
- For potentially resectable cases, if stenting is undertaken before MDT review, the stent should be plastic
- Stenting undertaken after completion of staging should be done with a short metal stent (may be after CT or after EUS Lap USS depending on recommendation for staging)
- All patients with a pancreatic mass or any element of pancreatic duct obstruction should be started on pancreatic enzyme supplementation before meals and a PPI before breakfast and the evening meal.

3.4.2 Note 2: Criteria for Diagnosis of Pancreatic or Peri-ampullary Malignancy

Patients with any of the following should be assessed as having malignant or pre-malignant conditions until proven otherwise. Included within this group are patients with peri-ampullary tumours, duodenal tumours and distal cholangiocarcinoma.

- A mass in the head of the pancreas on CT or MRI
- A stricture of the distal common bile duct on ERCP or MRCP
- The combination of a dilated pancreatic duct and common bile duct on any imaging in the absence of a visible mass
- An isolated dilated pancreatic duct on any imaging except where explained by clear chronic pancreatitis in the absence of a visible mass
- An abnormal appearing papilla with any degree of dysplasia on biopsy or suspicion that biopsy is negative due to sampling error
- Biopsy is not essential and is inadvisable where there is a potential for curative resection, except where performed endoscopically. A serum CA19.9 level can be useful evidence, especially in equivocal cases. It should be requested upon suspicion of malignancy. Referral should not be delayed while waiting for biopsy results.

3.4.3 Note 3: Patient Assessment

- History and examination to assess clinical extent of disease, co-morbid disease and overall fitness
- A specific assessment of the urgency of the need for the palliation of jaundice should be made based on symptoms of jaundice, bilirubin level and symptoms consistent with malabsorption. It is preferable to obtain CT imaging prior to stenting
- A specific assessment of the possibility of gastric outlet obstruction with radiological (barium meal) or endoscopic confirmation organised if suspected
- A specific assessment of nutritional status to include total and percentage weight loss, body mass index and serum albumin
- Inform patient of likely diagnosis and introduce the local Cancer Nurse Specialist
- Assess understanding and willingness to undergo further staging and treatment strategies.
- Discussion with centre / at MDT regarding completion of staging with CT-PET.

3.4.4 Note 4: Standard of CT

- Most patients will require a CT for disease staging
- The CT should include abdomen and full thorax views and should be performed with intravenous +/- oral contrast (see supplementary note on CT imaging technique, sent separately from the central MDT radiology team).
- NICE Clinical Guideline NG85 indicated that patient with pancreatic cancers with no evidence of metastatic disease should be also be assessed with CT-PET.

3.4.5 Note 5: Informing the MDT Co-ordinator

If the patient is unsuitable for or elects not to undergo further investigation and to have only local palliative treatments inform the MDT co-ordinator. This can be by means of the referral proforma (sent by fax/email) and should include reasons for not performing further staging and the palliative treatment employed. This data will provide audit information for the ASW cancer network.

If the patient elects to have further staging investigations inform the MDT co-ordinator using a referral pro-forma or letter. Include the date of CT so that MDT meeting discussion can be organised for the same week and a provisional outpatient appointment and date for staging laparoscopic ultrasound can be arranged. These can be cancelled if the CT shows definite haematogenous metastases or locally unresectable disease. At the point of referral, if not already provided, the MDT co36perabili will ask for essential information required for a complete MDT discussion. This information requires clinical understanding and should therefore be provided by either the local nurse specialist or by one of the local medical team either in the form of a letter or a completed proforma that is provided by the centre. If complete information is not available at the time of the Centre MDT meeting, this can delay treatment recommendations.

Essential data for discussing patients:

- Highest and current bilirubin
- Stent date
- Latest serum albumin
- Degree of weight loss, back or abdominal pain and details of any other deterioration from usual state of health
- Functional status (ECOG of WHO)
- Baseline exercise tolerance currently and prior to illness
- Details of co-morbidities, cardiac, respiratory, diabetic or otherwise limiting
- Anti-coagulants, diuretics, immunosuppressants, other medications
- CT transferred electronically to UH Bristol or sent on CD
- Histology/cytology slides.

3.4.6 Note 6: Interpretation of CT Scans with Reference to Stents and Biopsies

Interpretation of metastases and local unresectability should always err on the side of caution in potentially treatable patients. This is particularly important when endoscopic stenting has failed and a percutaneous metal stent is being considered, as metal stents can make resection extremely difficult and hazardous. When in doubt, await the opinion of the MDT at the centre.

Stent placement by means of a combined procedure is the most desirable option when unresectability is yet to be determined. If the expertise does not exist for this technique locally then either the stent should wait until films have been assessed by the multidisciplinary team or the patient should be referred to the centre for stenting. Such cases can be discussed directly with one of the surgeons at the centre. If radiology is promising, in some cases a short metal stent can be appropriately placed after such a discussion such as to interfere minimally with surgery. For patients whose plastic stents have blocked on more than one occasion during recovery from jaundice and assessment, this may also be appropriate.

Biopsies (other than endoscopic biopsies) should not be undertaken in any patient where resection remains a possibility. This is because of the risk of intraperitoneal or needle tract seeding. Nearly all patients with unresectable disease require biopsy for the following reasons. Up to 15 % of such lesions may not be pancreatic adenocarcinomas and therefore may have a better prognosis and may be amenable to alternative chemotherapy. Participation in clinical trials requires histological proof of diagnosis. For some patients, histological proof is important to help the patient in accepting and dealing with their prognosis.

3.4.7 Note 7: Referral to the Cancer Centre

- Refer patients who are fit and willing to undergo attempts at curative treatment and have no evidence of disseminated disease. Also refer patients where there is uncertainty about their fitness and/or evidence of disease dissemination
- Discuss with the patient the diagnosis and reasons for referral to the Cancer Centre so that they understand the reasons for further investigation and treatment away from the Local hospital
- Patients should be seen by the local Upper GI Nurse Specialist before referral so that treatment co-ordination and future patient support can be facilitated between the Cancer Centre, the Local hospital and the GP.

For those patients deemed not suitable for care by the specialist team following MDT discussion and or investigation by the specialist MDT, liaison with the referring organisation will be undertaken and provision put in place to ensure onward management by the local team. Outpatient review by the specialist team to discuss findings with the patient can be undertaken if required. Additional discussion at the specialist MDT can be arranged at any point should this be required.

3.4.8 Note 8: Management of Biopsies in Local Hospital

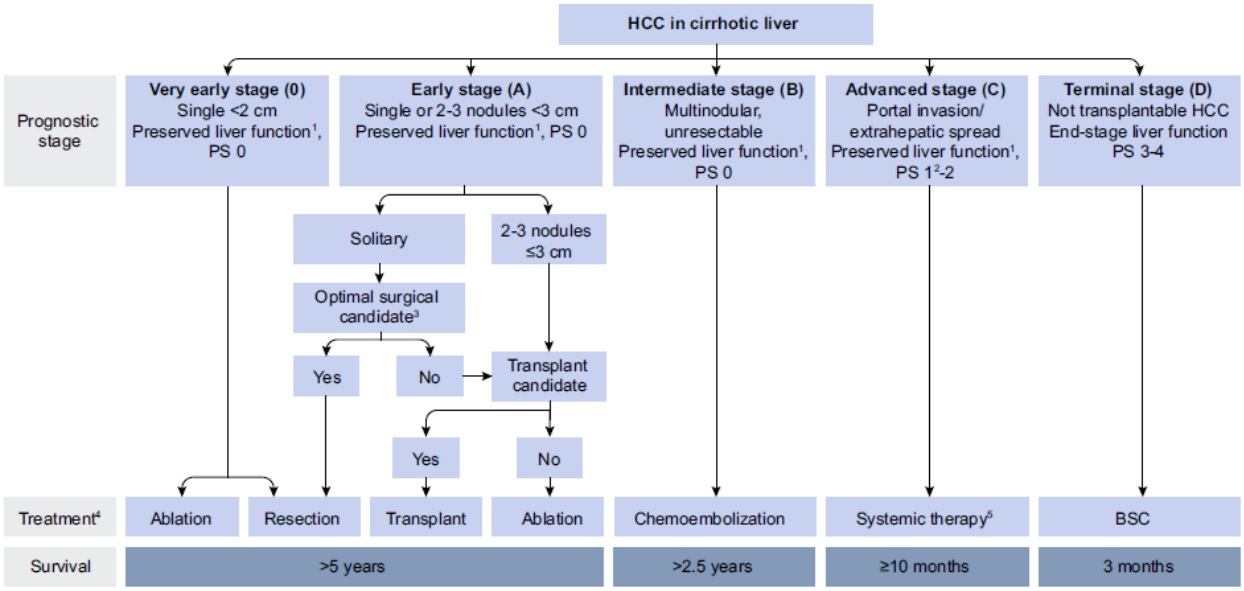
- Percutaneous biopsy should not be done before biliary obstruction is stented or otherwise treated to avoid the complication of bile leak
- It should be borne in mind that the opportunity may exist to obtain biopsies at the time of endoscopic or percutaneous stenting by means of brush cytology or newer intraluminal biopsy devices, or at the time of open bypass
- At the earliest possible date cytological or histological slides, where relevant, should be forwarded to the Cancer Centre so that a second reading can be undertaken by the MDT pathologist before MDT discussion.

3.5 Management of Hepato-Cellular Carcinoma (HCC)

3.5.1 Referral of patients with Hepato Cellular Carcinoma (HCC)

Introduction

This paper outlines the current management strategy for patients with hepatocellular carcinoma (HCC) who are referred to the Bristol Central HPB MDT. CAG refer to the EASL Clinical Practice Guidelines for the management of hepatocellular carcinoma (2018), found here. Liver cancer services are not currently subject to NICE or IOG guidance, although it is likely that this will happen in the future. These guidelines summarise the management of patients presenting with HCC within the SWAG Cancer Network. This is presented for discussion so as to facilitate the development of network wide referral guidelines. Patients with chronic liver disease are generally managed according to the Barcelona Clinic Liver Cancer (BCLC) staging classification and treatment schedule:



3.5.2 Diagnosis / Staging

Patients with suspected HCC who are to be considered for active treatment should undergo a multiphasic MRI scan with dynamic Gadolinium contrast or a multiphasic contrast enhanced CT scan. AFP, Child-Pugh score and performance status should also be assessed. Percutaneous biopsy is not always required when either MRI liver or CT liver is diagnostic of HCC. Biopsy should be carried out when both MRI liver and CT liver are non-diagnostic of HCC. In addition, histological confirmation is required for the approval of sorafenib (or levantanib) via the cancer drug fund.

3.5.3 Chronic Liver Disease

Stage 0 / Stage A (Very Early Stage / Early Stage)

UK listing criteria for liver transplantation are based on extended Milan criteria (ref- https://nhsbtdbe.blob.core.windows.net/umbraco-assets-corp/15904/020519_liver-selection-policy-pol195.pdf). This means patients who are suitable for liver transplantation with the HCC as follows may be suitable for assessment for transplant:

- A single tumour ≤5cm
- Up to 5 tumours, all of which are >3cm
- A single tumour 5cm-7cm which is stable over a 6 month period. During this period locoregional therapy and/or chemotherapy can be given.

Bristol Royal Infirmary has a service level agreement with the Royal Free Hospital, London whereby patients can undergo much of their pre-transplant assessment and post-transplant follow-up in Bristol. Patients with HCC with cirrhosis who might be suitable for liver transplant can either be referred to the HPB MDT for consideration of transplant by this route. Alternatively, referring centres can choose to refer these patients directly to a liver transplant centre.

Some patients with Child's A cirrhosis may be suitable for resection rather than liver transplantation, but this should only be considered following assessment of the patient by a liver transplant centre and a full discussion with the patient as to the pros and cons of each approach. Patients who have been turned down for transplant or who opt for resection may choose to undergo surgery, which may be carried out in Bristol or in a transplant centre.

Patients listed for transplant may require treatment, usually transarterial chemoembolisation (TACE), as a bridge to transplantation. These procedures can be performed in Bristol if requested by the transplant centre. Patients subsequently found to be unsuitable for both transplant and resection may be considered for RFA or TACE which may be performed in Bristol.

Stage B (Intermediate Stage)

Patients with intermediate stage disease may be referred to the Bristol MDT. This will include patients who are out with extended Milan criteria These patients will be considered for RFA or TACE. Patients who are too old for liver transplant or who are not considered fit for either transplant or resection will also be considered for RFA or TACE. In general, tumours which are <3cm will be considered for RFA by either a percutaneous or laparoscopic approach. All RFA is carried out under general anaesthetic so patients who are too unfit for an anaesthetic may be unsuitable for RFA.

TACE can be offered to patients with more advanced HCC (larger lesions and multifocal disease) and does not require a general anaesthetic. However, TACE is contraindicated in patients with portal vein (tumour) thrombus.

Stage C (Advanced Stage)

Patients with advanced HCC (with portal vein invasion, extrahepatic spread) but who have preserved liver function (Child's A) can be considered for systemic therapy, provided an adequate performance status. Current first line options include sorafenib and levantanib. Second-line therapy with regorafenib has recently been licensed as follow-on therapy when there is evidence of progression on sorafenib. All three of these drugs are currently funded by the cancer drugs fund.

Stage D (Terminal Stage)

Patients with terminal stage disease (Childs C, performance status of 3-4) should be managed with best supportive care.

3.5.4 HCC in the Absence of Chronic Liver Disease

Patients who have developed HCC in the absence of chronic liver disease would normally be considered for resection. This includes patients with fibrolamellar HCC. These patients are currently referred to the Bristol MDT.

Contraindications to resection are portal vein invasion, the presence of metastases, an inadequate residual liver volume or major medical comorbidity. As with cirrhotic patients, those not suitable for resection may be assessed for RFA, TACE, clinical trials or BSC.

3.5.5 Hepatocellular carcinoma follow-up

Post resection

Years 0-2:	six-monthly CT scan and AFP measurement
Years 3-5:	six-monthly alternate CT and USS scan (with AFP measurement)
After 5 years*:	six-monthly USS scan with and AFP measurement

Post-ablation

At 6 weeks:	CT scan
At 3 and 6 months:	CT scan with AFP measurement
Year 2:	six-monthly CT with and AFP measurement
Years 3-5:	six-monthly alternate CT and USS scan (with AFP measurement)
After 5 years*:	six-monthly USS scan with and AFP measurement

Post TACE

At 6 weeks:	CT scan
At 3 and 6 months:	CT scan with AFP measurement
Year 2:	six-monthly CT with and AFP measurement
Years 3-5:	six-monthly alternate CT and USS scan (with AFP measurement)
After 5 years:	six-monthly USS scan with and AFP measurement

Systemic therapy

CT scan and AFP measurement (if raised at diagnosis) every 3 months

*For patients without cirrhosis or risk-factors for non-cirrhotic HCC (Hepatitis B, Family History, NASH, liver adenomas) who have had a single lesion curatively treated it may be appropriate to discontinue follow up imaging at 5 years.

3.6 University Hospitals Bristol and Weston Liver Transplant Pathway and Referral Criteria

UH Bristol Liver Transplant Team		Contact Details
Amy Williams	Liver Transplant Clinical Nurse Specialist	Amy.Williams2@UHBristol.nhs.uk
Jim Portal	Consultant Hepatologist	Jim.Portal@UHBristol.nhs.uk
Peter Collins	Consultant Hepatologist	Peter.Collins@UHBristol.nhs.uk
James Orr	Consultant Hepatologist	James.orr@uhbristol.nhs.uk
Sarah Lees	Liver Transplant Clinical Nurse Specialist	Sarah.Lees@UHBristol.nhs.uk
Victoria Hunt	Hepatology Clinical Nurse Specialist	Victoria.Hunt@UHBristol.nhs.uk

The UH Bristol Liver Transplant Team work in collaboration with the transplant team from the Royal Free Hospital, London:

Sheila Sherlock Liver Centre
Level 4
Royal Free Hospital
Pond Street
London
NW3 2QG
02077940500

In the event that an unresectable hepatocellular carcinoma (HCC) is identified via the Bristol Royal Infirmary Cirrhosis Surveillance Clinic or Specialist HPB MDT, the Milan Criteria are used to assess if a patient would be suitable for a potential transplant:

- Single tumour with a diameter less than 5cm
- Up to five tumours, each with a diameter of less than 3cm
- No extra-hepatic involvement
- No major vessel involvement.

There is also an extended option for a tumour greater than 5cm that remains stable in size for over six months, to be discussed with the transplant centre.

Once deemed appropriate, the option to be referred for a liver transplant assessment, and the potential that it could be ruled out as a treatment option, will be discussed with the patient. A referral will be made once mutual agreement has been confirmed.

The various lifestyle and fitness assessments, plus surveillance and cancer treatments required prior to transplant will be conducted by the UH Bristol Transplant Team in collaboration with the HPB Clinical Nurse Specialists:*

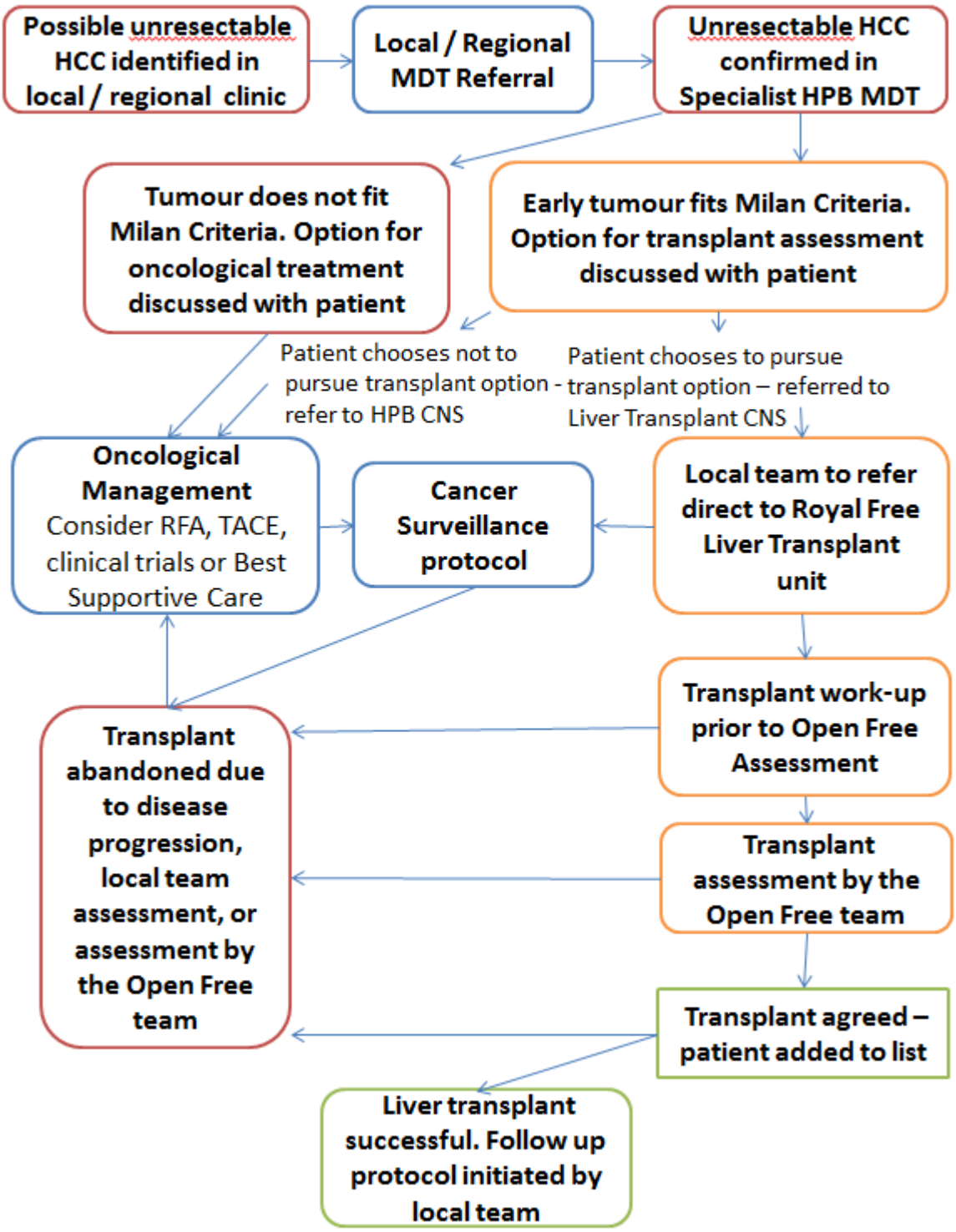
- EEG
- ECHO
- Dobutamine stress echo (if applicable)
- Lung function test
- CT Chest
- DEXA scan.

Detection of severe cardiopulmonary disease, active infection, or an Alfa-Fetoprotein (AFP) Tumour Marker greater than 1000, would indicate that a patient would not be suitable for transplantation, as would the use of recreational drugs or alcohol within 6 months of the referral.

Patients who have abstained from drug / alcohol use for greater than 6 months will be considered for referral and will be registered with the alcohol support group in UH Bristol and The Royal Free.

The Royal Free team attend a quarterly joint clinic in UH Bristol for patients who are at the correct stage to be assessed by their transplant team. Patients who require assessment before the next joint clinic is due to be held are referred to a two day assessment clinic at the Royal Free before a decision can be made to add the patient to the transplant list. In the event that a patient is approved for a liver transplantation, their cancer surveillance and treatment will continue to be delivered by the UH Bristol transplant service until transplanted, or until the patient's disease progresses beyond the transplant criteria. Patients deemed unsuitable for transplant continue to have their cancer surveillance and treatment provided by Dr Peter Collins and the HPB Clinical Nurse Specialist team.

Liver Transplant Pathway for patients with Hepatocellular Carcinoma (HCC)



3.7 Management of hilar cholangiocarcinoma and proximal biliary stricturing disease

The referral guidelines between teams have been drawn up by the Upper GI site specialist group and are detailed in this section. These guidelines provide information about the referrals at three different stages of a cholangiocarcinoma.

- Investigation with or without treatment at the Local Unit
- Treatment for unresectable tumours
- Investigation and Treatment at the Cancer Centre.

3.7.1 Investigation with or without treatment of possible of Hilar Cholangiocarcinoma

- All cases are discussed at the Local Unit MDT. Imaging in the form of a contrast enhanced CT of the chest abdomen and pelvis (CAP) is performed.
- If a hilar chlangiocarcinoma is suspected
- A triple phase liver CT is suggested if the CT CAP does not provide adequate information regarding arterial and venous anatomy (particularly liver inflow anatomy)
- MRCP is recommended to delineate biliary anatomy
- Early telephone contact with the Cancer Centre HpB Consultant is advised to guide biliary drainage options – ERCP is avoided in many cases
- Urgent discussion in next MDT
- Decision regarding 44perability
- A member of the MDT and a Clinical Nurse Specialist (CNS) should assess the clinical extent of disease, co-morbidity, overall fitness, and the patient's understanding and willingness to undergo further investigations and potential treatment considering that data suggest only 55% of patients with initially operable disease reach surgery.

- Where there is clear evidence of metastatic disease, levels of comorbidity or a patient's preference preventing potentially curative treatment, then palliative care options should be arranged. This should be locally where possible. The central MDT should be informed of these decisions.

- In addition to supportive care, palliative treatments may include placement of metal biliary stents
- The central MDT should be involved if further discussion of palliative care options is required.

3.7.2 Guidance for the Management of Hilar Cholangiocarcinoma and treatment pathways

Jaundice

↓

USS

↓

Intrahepatic duct dilatation (unilateral or bilateral) and normal CBD with potential abnormality at the hepatic hilum

↓

MRCP and CT angiogram liver (chest, abdo, pelvis)

↓

Please avoid immediate ERCP , refer to HPB MDT
And Discuss with Consultant HpB Surgeon of the Week at Cancer Centre to establish optimal biliary drainage strategy

↓

PSC or suspicion of PSC / IgG4 disease

Consider ERCP and brushings/ ERCP spyglass/EUS and biopsies/PET scan (decision made at MDT or by discussion with HpB Surgery Consultant)

↓

MDT discussion to decide on potential resectability if not inflammatory disease.

OPERABLE

Determined by 1)absence of metastatic disease & 2) sparing of the secondary biliary confluence on at least one half of the liver and the vessels (artery and portal vein) on that side

Laparoscopy and lap USS

&

Bilateral PTC and internal external / external drains (If unilateral draining side of liver that will remain after any surgery)

(till bilirubin <50micromol/l)

(Timing of two interventions above depends on resource availability)

SURGICAL OPTIONS

Left or extended left hepatectomy
(Consider residual liver volume estimation)

Extended right hepatectomy, caudate lobectomy +/- portal venous excision and reconstruction(Consider residual liver volume estimation)

Central liver resection

All with extrahepatic bile duct excision, lymphadenectomy and Roux en Y reconstruction)

Adjuvant chemotherapy in relevant cases

Inoperable

PTC and bilateral metal stents (Occasionally ERCP if suitable and immediate access to PTC is not available)

Palliative chemotherapy and Palliative care

3.7.3 ERCP spyglass procedures

Using the SpyGlass direct visualisation system for diagnostic and therapeutic procedures during endoscopy of the biliary system in the context of possible malignancy

The SpyGlass is a visualisation and intervention system that is used for the diagnostic and therapeutic management of indeterminate strictures and large stones of the biliary system when standard endoscopic retrograde cholangiopancreatography (ERCP) is unsuccessful or considered inappropriate. Unlike standard ERCP, the SpyGlass is a single-operator system designed to visualise and facilitate access to the biliary ducts during both diagnostic and therapeutic procedures. The SpyGlass system is intended for use in endoscopic units which have both the equipment and expert staff to carry out ERCP. The intended user is a clinician trained in ERCP endoscopy.
See https://www.nice.org.uk/advice/mib21 for further information.

ERCP and spyglass in the context of biliary stricturing disease would be suggested after discussion either

1. At the HpB MDT
2. By direct discussion with a HpB Surgery Consultant
3. By direct discussion the Hepatology / Hepatobiliary Medicine Consultant (Jim Portal) at UH Bristol who undertakes the procedure.

Spyglass has utility in differentiating between malignant and benign proximal biliary strictures. **-END-**