Guidelines for the Management of Adult Patients with Urological Cancers 2013
# Version Control

This is a controlled document please destroy all previous versions on receipt of a new version.

## Date Approved: February 2013  
## Review Date: February 2015

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<th>Review Date</th>
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<td>5.4</td>
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<td>Reviewed by the group, no changes made except for version / contacts. HYCCN became NEYHCA in February 2012. Algorithms updated. YCN pathways checked and updated.</td>
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For the latest version of these guidelines please see the NEYHCA (Cancer) website

Please press control and click on the link below:

11.13 Radiology ............................................................................................................................ 61
11.14 Treatment Algorithm for Testicular Germ Cell Cancer ..................................................... 62

12. Penile Cancer ............................................................................................................................. 64
12.1 TNM Classification and Pathology ........................................................................................... 65
12.2 Diagnosis and Staging ........................................................................................................... 66
  12.21 Primary lesion ................................................................................................................... 66
  12.32 Regional lymph nodes ....................................................................................................... 66
12.3 Treatment ............................................................................................................................... 68
  12.31 Treatment of the Primary Tumour .................................................................................... 68
  12.32 Treatment of Regional Lymph Nodes .............................................................................. 71
  12.33 Treatment of Metastatic Disease ..................................................................................... 74
12.4 Follow-Up ............................................................................................................................. 74
12.5 Pathology ............................................................................................................................... 77

13. Teenagers & Young Adults ....................................................................................................... 78
13.1 Standard Operating Procedure ............................................................................................. 78
13.3 Pathway for Teenagers & Young Adults with Cancer V1.0 (YCNC & NEYHCA Cancer / HYCCN) ................................................................................................................................. 79

14. Palliative Care Guidelines ......................................................................................................... 80
14.1 Key Workers .......................................................................................................................... 80
14.2 Summary of Specialist Palliative Care Services Available Throughout the Region .............. 82

15. Supportive Care Pathway .......................................................................................................... 83
15.1 Rehabilitation ........................................................................................................................ 84

16. Patient Information .................................................................................................................... 85

17. References .................................................................................................................................. 87

Appendices ...................................................................................................................................... 88
  Appendix i NEYHCA MDT meetings for Urological Cancers / Referral PCTs / Catchment Populations / Table of Key Contacts – August 2011 ................................................................. 88
  Appendix ii Imaging Guidelines ................................................................................................. 89
  Appendix iii Yorkshire Cancer Network Testicular Cancer Pathway .......................................... 93
  Appendix iv Yorkshire Cancer Network, Penile Cancer ............................................................ 97
  Appendix v Names and Roles of the Urology CEG Members (Updated 12.3.2012) .................... 102

Guidelines Agreed (Clinical, Imaging and Pathology) ................................................................. 104
  Urology Guidelines Agreed 2013 (Clinical, Imaging and Pathology) ........................................ 105
1. Foreword

‘A guideline is not a rigid constraint upon clinical practice, but a concept of good practice against which the requirements of the individual patient can be considered’. (RCR 1990)

It therefore remains the responsibility of the practising Clinicians to interpret the application of guidelines, taking into account local service constraints and the needs and wishes of the patients.

In reviewing the summary guidelines, local clinicians and managers will be required to assess whether the guidance can be met, and if not what service developments need to be undertaken to achieve the ‘ideal service’ as defined by the available evidence.

1.1 Objectives and Methodology

The Manual for Cancer Services states that the Network Site Specific Groups should agree network-wide clinical and referral guidelines. Guidelines define structure, process and standards against which the development and quality of the service can be assessed through audit. They also allow the service to be reviewed against the ideal, in order to direct effective service development and investment, and ensure seamless care is delivered and maintained between primary, secondary and tertiary sectors.

1.2 Audit & Research

- All units should have policies or guidelines for care, with the guidelines developed through consultation between Cancer Units and Cancer Centres. These guidelines will form the basis for audit and evidence of relevant data collection should be demonstrated. The main issues to monitor include clinical throughput, morbidity, pathology and monitoring of outcomes. The results will then be used to evaluate implementation of these guidelines and identify problem areas where further education and/or resources need to be targeted.

- Audit should take place across the entire service delivery network, including the Cancer Centre and all related Units. The Chair of the Urology CEG and the Chair of the Network Board should agree at least 1 network audit project which should be annually reviewed.

- All members of the multidisciplinary team should attend regular audit meetings.

- Cancer Centres/Units should be encouraged to participate in surgical and non-surgical randomised controlled trials, particularly national trials. Primary Care Trusts should endeavour to secure the provision of additional resources needed to participate in clinical trials. There should be a single network list of clinical trials and/or studies into which the MDTs should give priority for patient entry.

- Remedial actions should be agreed for improving recruitment into approved trials

- A minimum dataset and agreed policy for collection of the dataset should be agreed across the cancer network.

- A data manager/MDT Co-ordinator should be employed to collect the agreed Network minimum dataset. A record of all patients with known or suspected urological cancer should be kept. All patients with known or suspected urological cancer should have details recorded.

- The Manual for Cancer Services states that cancer sites which have standards based on Improving Outcomes Guidance (IOG), the parameters to be audited should be drawn from the “Measurement” sections of the relevant IOG.
# 2. Epidemiology & Health Policy Issues

## 2.1 Regional Incidences & Survival

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<th>NHS Hull</th>
<th>NEL CTP</th>
<th>NHS NL</th>
<th>NHS NYY</th>
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<td>(2003-07)</td>
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Data Source: UK Cancer Information Service, Nov 2010

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<thead>
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<td>Network has fifth lowest 5 year survival with second lowest for females</td>
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Data Source: UK Cancer Information Service, Nov 2010
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<td>NYY and ERY are in the quintile with highest one year survival.</td>
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<td>HYCCN has third lowest survival rate for all networks; Hull figures in 10% PCTs in England with lowest survival.</td>
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Data Source: UK Cancer Information Service, Nov 2010
3. Service Organisation

3.1 General

- The Cancer Centre and the Cancer Units should agree clear local policies for the management of urological cancer. These policies should be designed to ensure the co-ordination of high quality care between Cancer Centres, Cancer Units, palliative care, primary care and community services.
- There should be rapid and efficient communication systems for liaison and cross-referral between all levels of service, including primary care, psychologists, cancer genetic specialists, social workers and palliative care.
- There should be joint clinics involving different disciplines, to enable a patient to be seen and discussed by two or more of the team members together.
- Children, Teenagers and Young Adults – see later section of these guidelines
- Cancer Centres should have the facilities to allow proper integration of surgical and intensive care facilities with those of radiotherapy and medical oncology.
- Each Cancer Centre/Unit should have established direct access to Haematuria clinics.
- Appropriate provision of care for the terminally ill must also be made, with services for effective pain relief and full psychological and pastoral care.

NEYHCA provides and co-ordinates a wide range of services for patients with urological cancers within a defined geographical area. Different degrees of specialisation are required to deal with the various types of cancer, and multidisciplinary teams (MDTs) should operate in cancer units, cancer centres, and at Supra-network level; these will be distinct teams, although there is likely to be overlap between their members. All teams should participate fully in the urological cancer network, and all members of teams should be involved in discussions on local policy decisions and in auditing adherence to them.

3.2 The Local Urological Cancer Multidisciplinary Team

The core team specific to the local urology team should include
- At least 2 urological surgeons
- Clinical oncologist
- Medical oncologist where the responsibility for chemotherapy is not undertaken by the clinical oncologist core member
- Histopathologist
- Radiologist
- Urology nurse specialist
- MDT co-ordinator
- An NHS-employed member of the core or extended team should be nominated as having specific responsibility for users’ issues and information for patients and carers.
- A member of the core team nominated as the person responsible for ensuring that recruitment into trials and other well designed studies are integrated into the function of the MDT

Psychological Support
At least one member of the team should have completed the training necessary to enable them to practice at level 2 for the psychological support of cancer patients & carers, with a minimum of one hour’s clinical supervision by a level 3 or 4 practitioner per month

The team must maintain close contact with all other professionals who are actively involved in treating or supporting patients.
The team should hold its meetings at least weekly and record core members’ attendance and have a written procedure governing how to deal with referrals, which need a treatment planning decision before the next scheduled meeting.

### 3.3 Role of the Local Urological Cancer Team

This team will:

- Provide a rapid diagnostic and assessment service;
- Identify and manage all patients with urological cancers, including those cared for elsewhere in the hospital;
- Be responsible for the provision of information, advice and support for all patients and their carers throughout the course of the illness; this should include those who are receiving most of their care from clinicians who are not members of the urological cancer team, such as physicians for care of the elderly;
- Provide treatment and follow-up for these patients and ensure that every patient with urological cancer receives multidisciplinary management with appropriate oncological input;
- Provide a rapid referral service for patients who require specialist management;
- Liaise with primary care teams, specialist teams, services for the elderly and voluntary organisations such as hospices;
- Ensure that GPs are given prompt and full information about any changes in their patients’ illness or treatment;
- Collect data for network-wide audit.

### 3.4 The Specialist Urological Cancer Multidisciplinary Team

Patients with cancers which are less common or require complex treatment should be managed by specialist multidisciplinary urological cancer teams. Specialist urological cancer teams should manage the following types of patients:

- Men with early-stage prostate cancer for whom surgery is considered appropriate and who elect to undergo radical prostatectomy.
- Patients with muscle-invasive bladder cancer. Patients with high-risk superficial tumours should be formally discussed with the specialist team; some of these will require referral for management by the specialist team. There should be specific local protocols which define these patients and give details of appropriate referral and management.
- Patients with kidney cancer who fall into the following categories:
  - Those with tumours which have, or may have, invaded major blood vessels;
  - Patients who might benefit from resection of metastases;
  - Patients with bilateral disease or who will require dialysis;
  - Patients with small tumours for whom nephron-sparing surgery may be possible;
  - Patients with von Hippel-Lindau disease or hereditary papillary tumours.

### 3.5 Role of the Specialist Urological Cancer Team:

Specialist urological teams provide specialist care for their referring catchment (minimum one million). All members should have a specialised interest in urological cancer with one or more member taking managerial responsibility for the service as a whole.

Within the Core Centre Urological Cancer team there should be:

- At least 2 urological surgeons
- Clinical oncologist
• Medical oncologist where the responsibility for chemotherapy is not undertaken by the clinical oncologist core member
• Histopathologist
• Radiologist
• Urology nurse specialist
• MDT Coordinator/Secretary
• An NHS-employed member of the core or extended team should be nominated as having specific responsibility for users’ issues and information for patients and carers.
• A member of the core team nominated as the person responsible for ensuring that recruitment into trials and other well designed studies are integrated into the function of the MDT

Psychological Support
At least one member of the team should have completed the training necessary to enable them to practice at level 2 for the psychological support of cancer patients & carers, with a minimum of one hour’s clinical supervision by a level 3 or 4 practitioner per month.

The team must maintain close contact with all other professionals who are actively involved in treating or supporting patients.

The team should hold its meetings at least weekly record core members' attendance and have a written procedure governing how to deal with referrals, which need a treatment planning decision before the next scheduled meeting.

3.6 The Supra-Network Specialist Urological Cancer Team

Patients with testicular or penile cancer should be managed by specialist testicular cancer or penile cancer teams working at the supra-network level. Such teams should serve up to four networks, with a combined population base of at least two million for testicular cancer and four million for penile cancer. (These teams should liaise closely with local urological cancer teams which will be responsible for some aspects of the diagnosis and treatment of these cancers.

3.7 Multidisciplinary Team Meetings (MDTs)
(See Appendix i)

• There should be an operational policy for the team whereby it is intended that all new cancer patients will be reviewed by a multi-disciplinary team.
• The core team members need to meet on an annual basis to discuss, review, agree and record at least some of the operational policies.
• There may be a need for a separate pre-operative meeting in addition to the conventional post-operative/therapeutic meeting. The membership of this meeting is to be named and agreed by the Lead Clinician of the MDT. No other standards then apply to this activity.
• The core members, or their arranged “cover”, should attend at least two thirds of the number of meetings. “Cover” need not be a Consultant, but should be a Specialist Registrar or Staff Grade.
• The MDT should send a representative to two thirds of CEG meetings
• As stated in the NHS Cancer Plan, the care of all patients should be formally reviewed by a multi-disciplinary team. This will be done either through direct assessment or through formal discussion with the team by the responsible clinician. This will help ensure that all patients have the benefit of the range of expert advice needed for high quality care.
• The MDT should have agreed a policy whereby after a patient is given a diagnosis of cancer, the patient's general practitioner is informed of the diagnosis by the end of the following working day.

• Feedback should be given to referring GPs and other PCTs on the appropriateness and timeliness of urgent suspected cancer GP referrals.

• The MDT operational policy should include a policy for identifying a single named key worker for the patients’ care for each individual patient which is recorded in the patient’s case notes.

• The MDT should have at least one core nurse member who should have enrolled in, or be undertaking, a programme of study in their specialist area of nursing practice, which has been accredited for at least 20 level III CAT points. They should also have enrolled in or be undertaking a course in communication skills, which is accredited for CAT points.

• The core nurse member should have a list of responsibilities agreed with the MDT and the lead clinician

Each member should attend a regular weekly tumour review/case management multidisciplinary meeting. A record of core member attendance should be maintained. The MDT should have written procedure governing how to deal the referrals that need a treatment planning decision before the next scheduled meeting.

3.8 MDT Workload

The Local and Specialist MDT should provide

• The total number of radical prostatectomies performed each year
• The total number of cystectomies performed each year
• Same statistics for each individual surgical member of the team (which should be more than 5 in each case)

The Specialist MDT should provide

• Statistics to show that the combined total of radical prostatectomies and / or total cystectomies recorded and performed each year under the care of the MDT, should be 50 or more

The Supranetwork Testicular and Penile MDTs are responsible for providing

• The total number of new and recurrent cases of testicular / penile cancer referred to the team for discussion
• The total number of testicular resections performed by the MDTs relevant surgical members each year and the same statistics by individual surgeon
• The total number of penile reconstruction procedures / lymphadenectomies preformed by the MDTs relevant surgical members each year and the same statistics by individual surgeon
4. Primary Care Management

4.1 Referral for suspected Cancer

Patients indicating a strong clinical suspicion of malignancy should be referred to a specialist. This should be made within 24 hours of the decision to refer, on the appropriate referral letter, by fax to the appropriate ‘hotline’ number, clearly stating that it is an URGENT referral with a high risk of cancer and falls within the 2-week wait guideline.

Refer urgently patients¹

- With a hard, irregular prostate typical of a prostate carcinoma. Prostate-specific antigen (PSA) should be measured and the result should accompany the referral. (An urgent referral is not needed if the prostate is simply enlarged and the PSA is in the age-specific reference range.)
- With a normal prostate, but rising/raised age-specific PSA, with or without lower urinary tract symptoms. (In patients compromised by other comorbidities, a discussion with the patient or carers and/or a specialist may be more appropriate.)
- With symptoms and high PSA levels.
- Of any age with painless macroscopic haematuria
- Aged 40 years and older who present with recurrent or persistent urinary tract infection associated with haematuria
- Aged 50 years and older who are found to have unexplained microscopic haematuria
- With an abdominal mass identified clinically or on imaging that is thought to arise from the urinary tract
- Patients with a swelling or mass in the body of the testis.
- Patients with symptoms or signs of penile cancer. These include progressive ulceration or a mass in the glans or prepuce particularly, but can involve the skin of the penile shaft. (Lumps within the corpora cavernosa can indicate Peyronie’s disease, which does not require urgent referral.

4.2 Haematuria & Prostate Clinics

The MDT should hold a regular clinic which

- Should be identified on the hospital outpatient department clinic list or timetable as a clinic for new patients potentially having prostate cancer / haematuria;
- Should have the patients to be referred to the clinic defined by the agreed guidelines in topic 1A of the urology specific measures;
- Should be identified in GP information with a contact point for GP referrals of the above patients;
- Should have bookable, numbered clinic slots identified for the above patients;
- Should be run by surgical core member(s) of the MDT;
- Should be part of the work plan or timetable of a nurse specialist member of the MDT.
- The clinics may be part of an existing clinic or both the prostate and haematuria assessment clinics may run together as long as the conditions can be fulfilled independently for each of the two sets of patients

¹ NICE Referral guidelines for suspected cancer June 2005
5. Secondary Care Management

**Hull & East Yorkshire Hospitals NHS Trust** provides diagnostic, local and specialist urology cancer services for the population of the Humber and Yorkshire Coast Cancer Network.

**Northern Lincolnshire and Goole Hospitals Foundation NHS Trust** provides both diagnostic and local care urology cancer services for the population of Northern Lincolnshire and Goole.

**Scarborough Hospital** provides both diagnostic and local urology cancer services for the population of Scarborough and North East Yorkshire.

### 5.1 Table of key contact numbers for all Trusts

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<th>Hospital</th>
<th>Fax Number</th>
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<tbody>
<tr>
<td>Hull and East Yorkshire Hospitals NHS Trust</td>
<td>Urgent Referral (to be faxed)</td>
<td>Ms Sue Spence</td>
<td>Mr. Matt Simms</td>
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<tr>
<td></td>
<td>01482 675505</td>
<td>1 position vacant</td>
<td>Sec Wendy Brooksby</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Phone 01482 622188</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>Fax 01482 622106</td>
</tr>
<tr>
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<tr>
<td>Scarborough Hospital</td>
<td>Urgent Referral (to be faxed)</td>
<td>Ms Carol Popplestone</td>
<td>Mr. Simon Hawkyard</td>
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<td>01723 342423</td>
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<td>Ms Gillian Clark</td>
<td>Sec Deborah Milnes (Grimsby)</td>
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### 5.2 Imaging

Imaging Guidelines – [See Appendix ii](http://www.hyccn.nhs.uk/NetworkGuidelinesAndPublications/NetworkImagingGroup.htm) (Please press control & click on the link below)
5.3 Pathology

NHS histopathologists in England and Wales must work in laboratories that are seeking or have accreditation with Clinical Pathology Accreditation Ltd.

All specimens should be handled and recorded in accordance with the Minimum Dataset for histopathology reports for testicular tumours and post chemotherapy resididual masses (2nd edition) – RCP October 2007 and the Dataset for tumours of the urinary collecting system (renal pelvis, ureter, bladder and urethra) – RCP January 2007 (Please press control & click on the links below)

www.hyccn.nhs.uk/NetworkGuidelinesAndPublications/NetworkPathologyGroup.htm

- Histological confirmation should be sought for every lesion. Ideally, there should be pre-operative histological confirmation of the diagnosis and postoperative gross and microscopic assessment of the resected specimen. However, there will inevitably be some cases where this is not possible.

- The resection specimens should be sampled in order to confirm or establish the histological diagnosis and to provide prognostic information. The prognostic information should include all of the items detailed in the National Dataset for Urological Cancer. This will also fulfil the requirements of the cancer registries. In addition, additional data items may be collected as part of local quality control, audit and research initiatives.

- Each Cancer Unit should have identified a Pathologist to whom they refer difficult histopathology specimens for a second opinion.

- Histopathologists reporting cancers should participate in appropriate EQA schemes.

- Histopathology laboratories nominate a lead pathologist for each of the main cancers with responsibility for liaising with relevant local committees and clinicians and ensuring that the relevant cancers are examined, sampled and reported appropriately and in a consistent fashion.

- Cancer Centres and Units should be supported only by laboratories accredited to the standards of Clinical Pathology Accreditation (UK) Ltd, and staffed in accordance with the recommendations of The Royal College of Pathologists and the Association of Clinical Pathologists

- All cancer networks should have easy access to appropriate immunophenotypic, molecular biological and cytogenetic facilities. Some of the latter are very specialised pathology services and may not be provided by pathology laboratories within the LMDT or SMDT. *pg 88 IOG*
5.4 Secondary to Secondary Referral

Secondary to Secondary referrals, e.g. NLGHFT to HEYHT or Local MDT to Specialist MDT or referral to another specialty – e.g. Breast involves the following procedure:

5.41 Urology LMDT to Urology SMDT

There is one Specialist MDT within NEYHCA for Urological Cancers. This is based at Castle Hill Hospital in Hull.

Patients who need to be discussed at this Specialist MDT, whether they are from within the Network or from a surrounding Network, should be referred for discussion at the MDT based at Hull & East Yorkshire Hospitals NHS Trust.

Any referrals to this SMDT should be made by a faxed referral letter or copy of the referring Unit’s completed MDT proforma to

Urology MDT Co-ordinator
Tel: 01482 626796
Urgent Fax: 01482 675505

The MDT co-ordinator will add the patient to the Urology MDT for discussion and highlight these referrals to the MDT lead.

The MDT Lead is responsible for ensuring these patients are discussed at the Specialist MDT.

5.42 Urology MDT to another specialty

The same procedure applies, but the MDT coordinator for that specialty should be contacted.

In all instances the normal Inter Hospital Transfer (IHT) policy should be adhered to.

Follow up will normally be carried out by the referring hospital, but this will be discussed by the Specialist MDT and recommendations made by them.

Sarcoma referrals are described in the Sarcoma Guidelines. Please see the NEYHCA website: (Please press control and click on the link below)
http://www.hyccn.nhs.uk/NetworkGuidelinesAndPublications/sarcoma.htm

5.5 Urology Skin cancer referrals

(section from Skin network guidelines)

Patients with cancer of the external male genitalia, including mucosal melanoma, a patient that has initially been seen by the Skin / Specialist MDT will be referred by phone & / or fax to the Urology MDT for treatment, on the decision of the clinician involved.

HEYHT / NLGHFT

The Skin / Specialist MDT will inform the HEYHT Urology MDT lead (Mr Matt Simms) and MDT Coordinators. If the patient needs to be referred to Leeds via the Testicular or Penile pathway, this will be arranged by Mr Simms

Scarborough

The Skin MDT will inform the either the HEYHT MDT (see above) or the Leeds Urology MDT lead (Mr I Eardley) and MDT Coordinators. Mr Eardley is also the Supranetwork Penile MDT lead.

Follow Up

Follow up treatment will be provided by the Urology MDT
6. Bladder Cancer

All patients presenting with haematuria and suspected bladder cancer should undergo an ultrasound scan of their urinary tract and flexible cystoscopy in a dedicated haematuria clinic. On discovering a bladder tumour, arrangements should be made for urgent admission for cystoscopy under general anaesthetic for resection of the tumour(s).

One-third of patients with Transitional Cell Carcinoma (TCC) of the urinary bladder will be diagnosed as having muscle-invasive or metastatic tumour. Where treatment options are available or where options are controversial full counselling and risk benefits will be explained prior to any decision on treatment. The patient's wishes will be paramount.

6.1 Diagnosis

Referral guidelines from primary to secondary care have been previously stated

Physical examination
Physical examination should include rectal and vaginal bimanual palpation. A palpable pelvic mass can be found in patients with locally advanced tumours.

6.2 Staging

More than 90% of bladder cancers are found to be TCC. The remainder are squamous cell carcinoma (SCC) or adenocarcinoma. Bladder tumours are considered superficial (Tis, Ta, T1) or infiltrative (T2, T3, T4) based on cystoscopy, Transurethral Resection (TUR), imaging studies and histopathological findings.

6.3 T-staging

TUR and bimanual palpation
During TUR, tumour extent can be assessed by visualisation of the deep muscle or perivesical fatty tissue. In addition, bimanual examination before and after TUR should be performed to assess whether there is a palpable mass or the tumour is fixed to the pelvic wall.

6.4 Imaging

The aim of imaging is to assess the extent of the local tumour and to detect tumour spread to lymph nodes and other organs. Anatomical and functional information to help in making therapeutic decisions can be obtained using different imaging methods.

Intravenous urogram
Intravenous urogram (IVU) should be performed in all patients with multiple (>3) superficial tumours, high grade and CIS to detect upper tract TCCs.

Computed tomography (CT)
CT scan of abdomen with and without contrast, and CT chest should be performed on all patients with muscle invasive disease.

Magnetic Resonance Imaging (MRI)
All patients considered for radical surgery should have an abdominal/pelvic MRI scan.
6.5 TNM Staging

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>TX</td>
<td>Primary tumour cannot be assessed</td>
</tr>
<tr>
<td>T0</td>
<td>No evidence of primary tumour</td>
</tr>
<tr>
<td>Ta</td>
<td>Non-invasive papillary carcinoma</td>
</tr>
<tr>
<td>Tis</td>
<td>Carcinoma in-situ</td>
</tr>
<tr>
<td>T1</td>
<td>Tumour invades subepithelial connective tissue</td>
</tr>
<tr>
<td>T2a</td>
<td>Tumour invades muscle (inner half)</td>
</tr>
<tr>
<td>T2b</td>
<td>Tumour invades muscle (outer half)</td>
</tr>
<tr>
<td>T3a</td>
<td>Tumour invades beyond muscle into perivesical tissue microscopically</td>
</tr>
<tr>
<td>T3b</td>
<td>Tumour invades beyond muscle into perivesical tissue macroscopically</td>
</tr>
<tr>
<td>T4a</td>
<td>Tumour invades prostate, uterus, vagina</td>
</tr>
<tr>
<td>T4b</td>
<td>Tumour invades pelvic wall</td>
</tr>
<tr>
<td>Nx</td>
<td>Lymph nodes cannot be assessed</td>
</tr>
<tr>
<td>N0</td>
<td>No lymph node metastasis</td>
</tr>
<tr>
<td>N1</td>
<td>Metastasis in single node 2cm or less max. dimension</td>
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<tr>
<td>N2</td>
<td>Single lymph node metastasis &gt;2cm but &lt;5cm, or multiple lymph nodes</td>
</tr>
<tr>
<td>N3</td>
<td>Lymph node metastasis &gt;5cm max. dimension</td>
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<tr>
<td>Mx</td>
<td>Distant metastasis cannot be assessed</td>
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<tr>
<td>M0</td>
<td>No distant metastasis</td>
</tr>
<tr>
<td>M1</td>
<td>Distant metastasis</td>
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6.6 Pathology

All tumour specimens will be handled and recorded according to the Royal College of Pathologists Minimum dataset for bladder tumour histopathology reports, April 2000 incorporating the TNM staging 6th edition (2002).

6.7 Treatment

Superficial disease

All patients should receive one instillation of Mytomycin C 40 mg in 40 cc saline for one hour within 6 hours of the tumour resection where practicable.

Prognostic Factors

- Low risk tumours: single, TaG1, ≤ 3 cm diameter
- High risk tumours : T1G3, multifocal or highly recurrent, CIS
- Intermediate risk: all other tumours, Ta-1, G1-2, multifocal, > 3 cm diameter.

Low risk tumours

- Complete TUR (standard)
- An immediate installation of Mytomycin C as above

Intermediate risk tumours

- Complete TUR (standard)
- Re-TUR if complete resection not achieved
- Adjuvant intravesical chemotherapy, schedule: optional although the schedule used should not exceed 1 year
Or

- Adjuvant intravesical immunotherapy: drug BCG (full dose or reduced dose in case of side effects), schedule: maintenance: at least 3 years.

**High-risk tumours**
The treatment for high risk Ta-T1, G3 with or without carcinoma in situ or for carcinoma in situ (alone) consists of:
- Complete TUR of papillary tumours (standard)
- Re-TUR as soon as possible

Then consider
- Adjuvant intravesical immunotherapy drug: BCG (full dose or reduced dose in the case of side-effects). Maintenance schedule for 36 months
  Or
- Radical cystectomy plus urinary diversion if no response to BCG therapy is achieved.

These high-risk patients should be discussed at the cancer centre MDT and with the following consultants.

<table>
<thead>
<tr>
<th>Consultant</th>
<th>Institution</th>
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<tbody>
<tr>
<td>Mr M Simms</td>
<td>HEHYT</td>
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<tr>
<td>Mr L Coombs</td>
<td>NLGHFT</td>
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<tr>
<td>Mr S Hawkyard</td>
<td>Scarborough</td>
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</table>
6.8 Treatment Algorithm for Bladder cancer

The Network agreed chemotherapy regimens are available on the NEYHCA website (Please press control and click on the link below)
http://www.hyccn.nhs.uk/NetworkGuidelinesAndPublications/ChemotherapyAndPharmacy.htm
These regimens are regularly updated on the NEYHCA website
7. Muscle Invasive Disease

All patients with muscle invasive disease should be referred to the Cancer Centre in Hull for review of histology, CT & MRI scans.

7.1 Treatment

Those patients with squamous cell carcinoma and adenocarcinoma should be offered radical cystectomy with ileal conduit. Patients with TCC stage T2 - T4a, N0 - N2, should be considered for radical treatment. Options include radical radiotherapy, primary radical cystectomy and neoadjuvant chemotherapy followed by radical cystectomy. The patient's co-morbidity must be taken into consideration and the implications of all treatment modalities fully discussed. Patients with distressing urinary symptoms, e.g. dysuria and frequency, should be advised to undergo cystectomy.

Patients with T4b disease and N2 – N3 disease may be considered for palliative surgery or chemoradiotherapy

Patients with metastatic disease may be considered for chemotherapy and/or referral to the palliative care team.

Urinary diversion after radical cystectomy

Three treatment options are presently considered after cystectomy: an ileal conduit; a continent pouch; and bladder reconstruction.

Ileal conduit

The ileal conduit is a reliable treatment option with established efficacy. After long-term follow-up, however, 20% of patients develop stomal complications and 30% of the renal units become dilated (4). The disadvantage of the ileal conduit is mainly cosmetic.

Continent pouch

The continent pouch operation has become a routine procedure during the last two decades. The introduction of three processes were essential for its development:

- The principle of bowel detubularization to create a low-pressure reservoir in the form of a balloon-shaped sac
- An anti-reflux and continence mechanism
- The use of self-catheterization

A variety of continent reservoirs have been introduced; the majority use ileal segments, ileocaecal segments or the sigmoid colon. Following continent urinary diversion, early and late complications have been encountered in 12% and 37% of patients, respectively. Late complications include ureteral stricture/obstruction, incontinence, difficulty in catheterization and urinary stones. Metabolic complications are common, but in the majority of cases, and with correct patient selection and education, problems may be minimized with the use of an appropriate bowel segment and early intervention. The remaining disadvantage is that a stoma is still necessary.

Bladder reconstruction

Bladder reconstruction or the orthotopic bladder operation has been performed in men for more than a decade, and also, more recently, in women. The reservoir is anastomized to the top of the urethra and the main advantage is that no stoma is necessary. The patient empties the bladder by abdominal straining or clean intermittent catheterization.
Disadvantages include nocturnal leakage and problems with voiding requiring intermittent self-catheterization. The patient empties the bladder by abdominal straining and usually regains daytime continence while nocturnal leakage remains a problem.

Increased post-void residual urine is initially rare, but is reported to affect almost half of the patients after long-term follow-up. This is managed by clean intermittent catheterization.

**Patients suitable for bladder reconstruction and those requesting reconstruction will be reviewed by the appropriate consultant at the Cancer Centre in Hull.**

### 7.2 Chemotherapy

Following cystectomy for muscle invasive bladder carcinoma, up to 50% of patients may develop metastases. Five-year survival rates of 36–54% have been reported in cystectomy series from major academic centres. For high-risk patients with pT3–pT4 and/or pN+M0 bladder cancer, the 5-year survival rate is only 25–35%. One-third of patients relapse in the pelvis alone, but most patients relapse in distant sites. Response rates of 40–70% have been seen with cisplatin-containing combination chemotherapy regimens. This level of response has led to their use for locally invasive disease in combination with cystectomy or radiotherapy, either as neo-adjuvant or adjuvant therapy.

### 7.3 Neo-adjuvant chemotherapy

**Meta-analyses** A survival benefit for neoadjuvant cisplatin-based chemotherapy was demonstrated in a 2005 Cochrane database review that included individual patient data from 3005 individuals enrolled in 11 randomized trials comparing neoadjuvant chemotherapy with local therapy alone, including the US INT 0080 trial. Compared to no chemotherapy, neoadjuvant cisplatin-based combination chemotherapy resulted in a significant 14 percent reduction in the risk of death, which translated into a 5 percent absolute improvement in five-year OS (from 45 to 50 percent).

A similar degree of benefit was noted in a second meta-analysis that included published data from eight randomized trials (including INT 0080) that compared neoadjuvant cisplatin-based combination therapy to local therapy alone. Similar to the Cochrane review, the HR for death was 0.87, and this translated into a 6.5 percent absolute improvement in five-year OS (from 50 to 56.5 percent).

This should be offered to patients with muscle invasive bladder cancer who have a good performance status and adequate renal function.

### 7.4 Adjuvant chemotherapy

As the role of adjuvant chemotherapy is controversial this should be within the remit of a clinical trial. Decisions concerning individual patients must be made after careful examination of the histological specimen and knowledge of the known relapse rates per pathological stage.

### 7.5 Metastatic disease

Two prospective randomised trials have proven the superiority of MVAC (methotrexate, vinblastine, adriamycin and cisplatin) over single-agent chemotherapy. The use of cisplatin-based combination chemotherapy is associated with long-term survival in only approximately 15–20% of patients. The median survival duration is only 13 months. Long-term survival is attained in approximately 15% of patients with metastases in visceral sites and in 30% of those...
with nodal disease. It will be offered to patients after full counselling and preferably within the remit of a clinical trial if available.

### Guidelines On Chemotherapy

- Cisplatin-containing combination chemotherapy has resulted in complete remissions in 40–70% of patients, with cures in selected cases.
- MVAC and GC are both used as up-front chemotherapy for metastatic disease. Median survival is 12–14 months.
- A meta-analysis has shown survival benefit with neo-adjuvant chemotherapy before cystectomy or radiotherapy.
- Neoadjuvant chemotherapy in combination with radiotherapy for the purpose of bladder preservation is an investigational approach.
- Convincing data are not yet available on the benefits of adjuvant chemotherapy. Results of randomized adjuvant trials are pending.
- Appropriate patients will be counselled and offered neo-adjuvant, adjuvant and palliative chemotherapy preferably within the context of a clinical trial.

The Network agreed chemotherapy regimens are available on the NEYHCA website:
(Please press control and click on the link below)
http://www.hyccn.nhs.uk/NetworkGuidelinesAndPublications/ChemotherapyAndPharmacy.htm
These regimens are regularly updated on the NEYHCA website.

### 7.6 Follow Up

#### 7.6.1 Follow up after TUR in superficial bladder cancer

**Cystoscopy**

Cystoscopy remains the gold standard of follow-up after TUR, with flexible cystoscopy being more comfortable for patients.

- **First cystoscopy at 3 months in all cases**
  - In high-grade lesions (T1, G2 and G3), a second resection at the site of the TUR is advised as soon as possible.

**Frequency of later cystoscopies**

This should be adapted to the prognostic factors of the tumour. In all studies performed on SBC, the number of disease recurrences is highest in the first 2 years of follow up. Subsequently, the number of positive cystoscopies becomes less frequent. In low-risk tumours (single, primary, Ta G1 < 3 cm diameter) with no recurrence at 3 months, a follow up cystoscopy can be delayed until 9 months later and then carried out yearly for up to 5 years because of the very low recurrence rate.

In the case of disease recurrence, the histological findings are the same as those of the primary TUR in over 95% of cases.
In patients with high-risk tumours, cystoscopy every 3 months during the first 2 years remains the most commonly adapted follow-up schedule. Cystoscopy should then follow every 4 months in the third year, every 6 months thereafter for up to 5 years and then yearly. The schedule of follow up in the intermediate group lies between that of the high and low risk groups according to the prognostic factors mentioned above. With any disease recurrence, the schedule of cystoscopies is restarted from the beginning.

**How long should the cystoscopies be continued?**
The Kaplan-Meier curves of cancer recurrence rates all demonstrate a continuous line downwards with time without plateau formation. Recurrences continue to appear during follow up for up to 10-12 years.

Patients with regular recurrences will continue to have them until death or cystectomy. Patients with recurrences during the first 4 years after TUR continue to have lifelong recurrences. From the available data, it seems advisable to stop follow up in single Ta G1 tumours in the absence of recurrence over 5 years. In all other cases, yearly follow up is advisable for up to 10 years with lifelong follow up for the high-risk group.

**IVU**
The development of an upper urinary tract tumour during follow up of SBC is rare, and therefore IVU should not be carried out routinely. Higher numbers of urinary tract tumours can be expected in selected patient groups, such as heavy smokers, industrial workers and those with high-risk tumours. The highest frequency can be expected in Tis, and therefore IVU should be carried out when cytology remains positive during follow up.

**7.62 Follow Up: After treatment with curative intent**
Follow-up of patients with invasive bladder cancer after cystectomy and radiotherapy is recommended to detect local recurrence and distant metastases as early as possible to permit additional treatment when indicated and if possible. Such therapy may include salvage cystectomy, urethrectomy, nephro-ureterectomy and/or systemic chemotherapy with and without secondary surgery for residual tumour. Moreover, side effects of urinary diversion should be recognised early on and corrected if possible.

Prognostic factors and type of intervention (cystectomy, radiotherapy) are relevant in determining the most efficient follow-up regimen. The pT and pN-stage are the most important prognostic factors and in addition risk factors such as pTis will guide the follow-up procedures.

**7.7 Follow Up Procedures**

**Cystectomy**
The first assessment is at 3 months postoperatively and includes:
- Physical examination to exclude surgical complications
- Serum creatinine to assess kidney function
- Urine analysis
- Sonography of the kidney, liver and retroperitoneum
- Chest-X-ray
- CT should be considered for patients with a high risk of local recurrence

In case of unremarkable findings regular follow-up in intervals of 4 months are indicated. pTis patients need regular assessment of the upper urinary tract with an IVU annually for 5 years. All patients with residual urethras should undergo annual urethroscopy. Abdominal CT scans and bone scans will be performed if symptoms or signs suggest recurrent or metastatic disease.
Radiotherapy
The first assessment is at 3 months post-radiotherapy and includes:
Physical examination to exclude surgical complications
- Serum creatinine to assess kidney function
- Urine analysis
- Abdominal ultrasound
- CT scan of the pelvis
- Cystoscopy, EUA with deep biopsies of palpable masses in the bladder wall and urine cytology
- Chest-X-ray

The main interest during follow-up remains the bladder, because of the high local failure rate. Cystoscopy is therefore performed appropriate for the original tumour grade.

Tumour Recurrence Following Radiotherapy
A salvage cystectomy may be considered in appropriate cases.
8. Upper Tract Urothelial Cancers

Tumours of the renal pelvis and ureter are relatively uncommon. In patients with transitional cell carcinomas of the bladder, upper tract TCCs may occur in 2-4% of patients.

8.1 Evaluation

Radiological evaluation of the upper tracts has traditionally been via an IVU and is recommended in all patients with high risk superficial and intermediate risk TCCs. CT IVU may also be considered in some patients to evaluate haematuria. Most upper tract TCCs will be identified as a filling defect on imaging studies, but require further evaluation prior to definitive management.

The differential diagnosis of such filling defects include radiolucent calculi, clots, sloughed papillae, ureteritis cystica and fibroepithelial polyps. Such filling defects should be evaluated with retrograde pyelography and ideally ureteropyeloscopy, which allows direct visualisation and biopsy of any tumours.

8.2 Definitive Management

In patients with a normal contralateral kidney, radical nephroureterectomy remains the gold standard for organ confined and proximal ureteric TCC that is grade 3 or invasive. Grade 2 noninvasive TCC of the pelvis and ureter should be treated with radical nephroureterectomy when it is large and/or multifocal.

In patients with grade 2 noninvasive disease of the distal ureter, a partial ureterectomy and reimplantation of the ureter may be performed. Radical nephroureterectomy may be performed via laparoscopic or open surgery and the management of the distal ureter is at the surgeon’s discretion. In patients with distal ureteric TCC, a formal surgical excision of a cuff of bladder, along with the ureter is recommended rather than endoscopic “rip and pluck” excision.

In patients with solitary, small (<2cm) and low grade TCC endoscopic management may be considered. Endoscopic management should also be considered in patients with bilateral disease, a solitary kidney, impaired renal function and significant comorbidity.
9. Renal Cell Cancer

9.1 The Management of RCC

RCC accounts for 3% of all tumours. Annual increase in incidence of 2.5% per year. Predominance of men over women and an incidence peak in the 6th and 7th decade. Clinical signs and symptoms of RCC are becoming less frequent. Patients with haematuria as the presenting symptom require investigation to exclude additional tumours of the genitourinary tract.

9.11 Staging according to TNM 7th edition (01/01/2010)

T1  Tumour < 7 cm in greatest dimension, limited to the kidney
T1a Tumour < 4 cm in greatest dimension, limited to the kidney
T1b Tumour > 4 cm but < 7 cm in greatest dimension
T2  Tumour > 7 cm in greatest dimension, limited to the kidney
T2a Tumour > 7 cm but < 10 cm in greatest dimension
T2b Tumours > 10 cm limited to the kidney
T3  Tumour extends into major veins or directly invades adrenal gland or perinephric tissues but not into the ipsilateral adrenal gland and not beyond Gerota's fascia
T3a Tumour grossly extends into the renal vein or its segmental (muscle-containing) branches or tumour invades perirenal and/or renal sinus (peripelvic) fat but not beyond Gerota's fascia
T3b Tumour grossly extends into the vena cava below the diaphragm
T3c Tumour grossly extends into vena cava above the diaphragm or invades the wall of the vena cava
T4  Tumour invades beyond Gerota's fascia (including contiguous extension into the ipsilateral adrenal gland)

Across the network we should aim to treat >80% of all RCC >T1b with laparoscopic nephrectomy. However for tumours >= T3b open surgery is preferred. Cytoreductive nephrectomy is suitable in patients with good performance status who are also potentially suitable for systemic medical oncology treatment postoperatively. Palliative nephrectomy is suited for patients with symptoms either local or paraneoplastic. These patients may also be suitable for systemic therapy.

The classification of small renal (T1) masses has not changed from TNM 6th edition. Due to the increased detection of tumours by imaging techniques, such as ultrasound and computed tomography (CT), the number of incidentally diagnosed RCCs has increased to around 50%. These tumours are more often smaller and of lower stage.

European guidelines state
Patients with low-stage RCC (T1) should undergo nephron-sparing surgery. Radical nephrectomy is no longer the gold standard treatment in these cases. Level of evidence 2b.

Major considerations must be taken into account before agreeing on treatment with patients:

Indication for treatment:  Imperative  Solitary functioning kidney
                         Relative  Compromised Renal Function
                          Elective  Normal, healthy contralateral kidney

Bilateral / Multifocal Disease e.g. VHL
Synchronous tumours
For elective indication and T1a lesions partial nephrectomy provides recurrence free and long-term survival rates similar to those observed after radical surgery.

For T1b lesions, partial nephrectomy has demonstrated feasibility and oncological safety in carefully selected patients.

In patients with concerns over overall renal function partial nephrectomy provides better future preservation of renal function.

An eGFR < 60 mls/min (CKD stage III) is associated with significant increased risk of cardiovascular events and death.

A large retrospective cohort study showed risk of developing eGFR <60 mls/min was only 20% for partial nephrectomy but 65% for total nephrectomy.

EORTC Prospective, multi-centre, randomised trial on elective nephron-sparing surgery versus radical nephrectomy was recently published:

- Patients recruited from 1992-2003, Tumour <= 5cm, performance status 0-2, normal contralateral kidney.
- Power calculation to show 3% difference needed 1300 patients and 368 deaths.
- Recruitment closed 2003 due to poor accrual.
- 541 patients, 268 partial, 273 radical. Many ruled out due to >5 cm, multifocality, +ve margins.
- Leaving only 195 partial and 196 total to analyse
- All patients with intention to treat were analysed. The 10yr overall survival was 75.7% for partial and 81.1% for total.
- Controversially total nephrectomy superior to partial nephrectomy (p<0.03).
- However for RCC patients (a number of patients had non-RCC tumours) – no significance
- Study was grossly underpowered especially for RCC related deaths.
- EAU guidelines have not changed in light of this study

9.2 Open and Laparoscopic Partial Nephrectomy

Open partial nephrectomy is performed with standard incisions as for open total nephrectomy. It can be done with a transperitoneal or retroperitoneal approach dependant on the surgeons experience and site of the tumour within the kidney.

For excision the tumour is exposed by dissection of perinephric tissue from the kidney and the blood supply to the kidney is normally controlled by clamping of renal arteries to create ischaemia to enable a relatively blood free view.

Ischaemia to the kidney can permanently damage nephrons either by direct ischaemic- or reperfusion- injury.

An acceptable warm ischaemia time has not been sufficiently defined but is generally regarded to be below 20 minutes. Nephron survival has been shown to be longer with cooling of the kidney. This can be easily delivered with open surgical techniques. During open surgery small tumours can easily excised and the tumour bed oversewn without the need for cooling. Larger tumours usually require cooling to allow more time to excise the tumour, close the collecting system and oversew vessels within the tumour bed.
Laparoscopic partial nephrectomy is perhaps the most technically challenging laparoscopic urological procedure for several reasons

- Cold ischaemia is difficult to achieve.
- Laparoscopic suturing is a difficult skill to master.
- Haemostasis is challenging to achieve.
- Warm ischaemia time is limited whilst completing the above.

Nevertheless the general advantages of laparoscopic surgery over open surgery are easily applicable and are similar for all types of surgery. They include less trauma, faster recovery times and shorter hospital stay.

NICE guidance recommends the following

- Current evidence on laparoscopic partial nephrectomy suggests that it is safe and efficacious when undertaken by surgeons with special expertise in this technique. Surgeons undertaking laparoscopic partial nephrectomy should have specific training and regular experience in laparoscopic renal surgery.
- Clinicians wishing to undertake this procedure should ensure that patients fully understand the risks, including that of serious haemorrhage.
- Some small tumours may not be suitable for laparoscopic partial nephrectomy because of their position (centrally located lesions are more difficult to remove than peripheral lesions).
- Hospital stay is 2-3 days for laparoscopic partial nephrectomy and 5-6 for open partial nephrectomy.
- Positive margin is 0-3% for laparoscopic partial nephrectomy and 0-5% for open partial nephrectomy.
- For laparoscopic approach urinary leakage is 2-9%, intraoperative haemorrhage is 3-8% and post-operative haemorrhage is 2%.

It was noted that the published evidence came from highly specialised units experienced in laparoscopic renal surgery, where clinicians have undertaken a large number of laparoscopic partial nephrectomies.

9.3 Non-surgical therapy

Patients where long-term life expectancy is limited due to co-morbidity should be considered for treatments such as percutaneous radio-frequency ablation (RFA) or cryotherapy. Laparoscopic cryotherapy is also a good option.

High intensity focused ultrasound and microwave therapy have no proven role in the treatment of small renal masses.

- Hull and East Yorkshire Hospitals NHS Trust at Castle Hill Hospital has the longest running practice of percutaneous RFA in the UK.
- Laparoscopic cryotherapy is an established service at Scunthorpe General Hospital.

9.4 Radiofrequency Ablation

Cortical renal tumors and exophytic lesions are often more readily ablated due to the presence of surrounding fat, which provides an insulating ‘oven effect’ during ablation, and the absence of a heat-sink effect seen with medullary lesions. Ablation of cystic tumors can be challenging. The probe might need to be moved to different locations within the cystic tumor to ablate the solid components.
NICE guidance states
Percutaneous radiofrequency ablation of renal cancer. NICE interventional procedures guidance 353 (2010).

- Current evidence on the safety and efficacy of percutaneous radiofrequency ablation (RFA) for renal cancer in the short and medium term appears adequate to support the use of this procedure provided that normal arrangements are in place for clinical governance, consent and audit, and provided that patients are followed up in the long term.
- Patient selection for percutaneous RFA for renal cancer should be carried out by a urological cancer multidisciplinary team.
- NICE encourages data collection to provide information about the outcomes of this procedure in the long term. Further research should compare the long-term outcomes of RFA with those of other treatments for renal cancer.

9.5 Laparoscopic Cryotherapy for Renal Cancers

NICE interventional procedures guidance 405 (August 2011) [Current guidance]

- Current evidence suggests that cryotherapy for renal cancer ablates tumour tissue and that its safety is adequate provided normal arrangements are in place for clinical governance, consent and audit.
- Clinicians wishing to undertake cryotherapy for renal cancer should ensure that patients understand the uncertainties about its effect on quality of life and long-term survival, and provide them with clear written information.
- The procedure should only be offered after assessment by a specialist multidisciplinary team, which should include a urologist, an oncologist and an interventional radiologist.
- Controlled studies into the long-term clinical outcomes will be useful. NICE encourages collection and publication of data on the long-term outcomes of this procedure.
- Clinicians should enter all patients with renal cancer treated with cryotherapy into the British Association of Urological Surgeons Cancer Registry.

RFA vs Cryo evidence

Meta-analysis from 47 studies 1375 renal tumours, 600 Cryo 775 RFA

- The cryoablation procedures were predominantly surgical whereas RFA procedures were predominantly percutaneous
- 91% (43/47) of studies were included in regression analysis: Higher incidence of local tumour progression was found to be significantly associated with RFA treatment on univariate analysis (p = 0.001) and on multivariate regression analysis (p = 0.003).
- Mean follow up 18.7 mths
- Repeat ablations were required in significantly fewer patients treated with cryotherapy than radiofrequency ablation (RFA) (1% [8/600] vs 8% [66/775], p< 0.0001).1.
- The review reported that significantly less patients treated with cryotherapy had local tumour progression (defined as radiographic or pathological evidence of residual disease after initial treatment, regardless of time to recurrence) than those treated with RFA over a mean follow-up of 18.7 months (5% [31/600] vs 12% [100/775], p< 0.0001).
- Less patients treated with cryotherapy had progression to metastatic disease but this was not significant (1.0% [6/600] vs 2.5% [19/775], p = 0.06).1.
EAU Guidelines

- Radiofrequency and cryoablation are only minimally invasive approaches for the treatment of small renal tumours with medium follow-up data.
- Although the oncological efficacy is not yet known, currently available data strongly suggest that cryoablation, when performed laparoscopically, results in fewer retreatments and improved local tumour control compared with RFA.
- For both RFA and cryoablation, recurrence rates are higher than with nephron-sparing surgery.

9.6 Surgical Pathway of all Suspected Renal Cell Carcinoma

Pre-operative assessment
Treatment choice depends on co-morbidity therefore assessment of co-morbidity is essential. To provide standard measures for prospective audit use the Charlson co-morbidity index.

http://www.biomedcentral.com/content/ supplementary/1471-2407-4-94-S1.xls

- FBC, U&E, eGFR, Alk Phos, Ca^{2+}
- Triple phase renal contrast CT with axial and coronal views. CT thorax.
- DMSA differential function in patients with:
  - eGFR <60 mls/min
- Bilateral tumours
- Co-morbidity with risk of future renal impairment: DM, polycystic disease, stone disease
  - Small contralateral kidney

Biopsy only necessary if there is suspicion of the lesion being metastasis from another primary.

Treatment choice may depend on tumour location therefore a standard measure for prospective audit is necessary. The RENAL nephrometry scoring system is an excellent example.

www.nephrometry.com

Specialist MDT discussion
All suspected RCC should be referred to the Specialist Renal Cancer MDT based at Castle Hill Hospital. This will ensure network decisions on tumours where nephron sparing techniques can be strongly considered instead of total nephrectomy and laparoscopic nephrectomy can be strongly considered instead of open nephrectomy.

Patients with suspected RCC should be listed on the both unit MDT and the Specialist MDT at the same time. The Specialist MDT will make the formal recommendations for management.

Minimum members of the Specialist RCC MDT will include consultant medical oncology, radiology and surgical opinions.

Referral to the Specialist RCC MDT should be made by faxed referral letter or copy of the referring Unit’s completed MDT proforma to

Urology MDT Co-ordinator  
Tel: 01482 626796
Urgent Fax: 01482 675505

The MDT co-ordinator will add the patient to the Urology MDT for discussion and highlight these referrals to the MDT lead.

The MDT Lead is responsible for ensuring these patients are discussed at the Specialist MDT.
Treatments to be carried out in the specialist centre (Castle Hill Hospital)

- Resection of primary tumours which have or are suspected to have invaded renal vein, vena cava or heart. Where vascular bypass surgery required.
- Resection of metastatic disease.
- Resection of both primary and associated metastatic disease
- Resection of bilateral primaries. Whether renal support is predicted to be needed or not
- Resection of any primary where it is predicted that the patient will subsequently require dialysis
- Surgical management of patients with von Hippel-Lindau disease or hereditary papillary tumours
- Nephron-sparing surgery

Treatments that can be delivered in the local units (Scunthorpe General Hospital, Scarborough General Hospital)

- Total nephrectomy

Partial nephrectomy should be the standard treatment of choice for elective treatment of T1a renal masses. For T1b lesions partial nephrectomy should be considered. Due to local expertise in other nephron sparing techniques, these should also be offered to patients with elective indication for treatment. Where possible, due to the challenging nature of the surgery, laparoscopic partial nephrectomy should be performed in a team of two consultant urologists. There should be a clear plan discussed with the patient, documented in the notes and on the consent form on the sequence of events if laparoscopic partial nephrectomy becomes difficult to complete. The default action should be to proceed to open partial nephrectomy rather than laparoscopic total nephrectomy.

Patients with severe co-morbidity, increasing age and/or tumours <3cm should be offered watchful waiting as the preferred option.

Patients with co-morbidity, relative or imperative indication for treatment should be given choice of partial nephrectomy, percutaneous RFA or laparoscopic cryotherapy.

Complex operative data will be submitted as standard for national audit to the BAUS Data and Audit project.

Follow-up MDT review with the same core members but including consultant pathology opinion.

Prognostic nomograms are commonly used and have high, validated predictive accuracy. Currently used nomogram is the Mayo Clinic SSIGN score based on stage, size, grade and necrosis.
9.7 Systemic Therapy for Metastatic RCC

All patients should have formal Motzer score assessment complementing conventional staging. Patients for the following procedures and treatment should be referred to the specialist MDT in HULL and delivered under the care of the specialist team. Once the decision to treat has been decided by the specialist MDT these patients can be managed locally.

- Biological therapy
  - Immunotherapy in selected cases
  - Tyrosine kinase or M-TOR inhibitors
- Non-surgical management of non-renal cell cancer.
- All for RCC need to be reviewed centrally
- Assessment of ‘equivocal progressive disease’ should be reviewed centrally
  - RECIST criteria have been criticized as not fit for purpose in the assessment of TKI responses in some patients.
- Trials should be discussed at all stages. Equity of access to trials across the network should be the responsibility of the Specialist RCC MDT & Urology CEG.

9.8 Chemotherapy

No chemotherapy has been shown to have efficacy in conventional RCC. There may be a position for chemotherapy (Gemcitabine based) in predominantly papillary cell carcinoma. The evidence however remains equivocal.

The Network agreed chemotherapy regimens are available on the NEYCHA website (Please press control and click on the link below)
http://www.hyccn.nhs.uk/NetworkGuidelinesAndPublications/ChemotherapyAndPharmacy.htm
These regimens are regularly updated on the NEYCHA website.
9.9 Immunotherapy

Interferon-α confers a statistically significant survival advantage in randomised controlled clinical trials and a meta-analysis (Coppin et al, 2000). Increasing evidence shows that patients with intermediate or poor prognosis derive no benefit from interferon-α (Negrier et al, 2007) All recent available data comparing anti-angiogenic drugs in a first line setting to interferon-α monotherapy have demonstrated a superiority for anti-angiogenic drugs. Interferon-α monotherapy is no longer recommended as first-line therapy for mRCC.

9.10 Anti-angiogenic therapy

Recent advances in molecular biology have lead to the development of several novel agents for the treatment of MRCC. Sunitinib, Temsirolimus, Sorafenib, Bevacizumab, Everolimus, Pazopanib.

Where appropriate and suitable patients should be recruited into trials.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Risk or prior treatment</th>
<th>Recommended agent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st line therapy</td>
<td>Low – or intermediate-risk</td>
<td>Sunitinib, Pazopanib, Bevacizumab + IFN-alpha (not routinely funded)</td>
</tr>
<tr>
<td></td>
<td>High risk</td>
<td>Temsirolimus</td>
</tr>
<tr>
<td>2nd line therapy</td>
<td>Prior cytokine</td>
<td>Sorafenib (not routinely funded), Axitinib (Not Licensed)</td>
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<tr>
<td></td>
<td>Prior VEGFR</td>
<td>Everolimus, Clinical Trials</td>
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<tr>
<td></td>
<td>Prior mTOR(-)</td>
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The Network agreed chemotherapy regimens are available on the NEYHCA website (Please press control and click on the link below)

http://www.hycn.nhs.uk/NetworkGuidelinesAndPublications/ChemotherapyAndPharmacy.htm

These regimens are regularly updated on the NEYHCA website.
9.11 Network Treatment Algorithm for Metastatic Renal Cell Cancer

Sunitinib is an oxindol tyrosine kinase (TK) inhibitor. It selectively inhibits PDGFR, VEGFR, KIT and FLT-3 and has anti-tumour and anti-angiogenic activity.

Sunitinib increases median progression-free survival compared with interferon-α from 5 months to 11 months in population predominantly consisting of good and intermediate prognostic group patients with clear renal cell cancer (Motzer et al, 2007)

Sunitinib 50mg capsules Daily for 4 consecutive weeks followed by a 2 week rest period

Pazopanib hydrochloride is an oral multi-targeted tyrosine kinase receptor inhibitor with anti-tumour activity.

Pazopanib inhibits vascular endothelial growth factor receptor (VEGFR) -1, -2 and -3, platelet-derived growth factor receptor (PDGFR), and ckit, which may result in inhibition of angiogenesis in tumours in which these receptors are upregulated. Pazopanib is administered at 800mg once daily as monotherapy.

Funding of treatment of patients with temsirolimus is through the Cancer Drugs Fund
Temsirolimus is a selective inhibitor of the mammalian target of rapamycin (mTOR), a serine threonine kinase that regulates a signalling cascade controlling growth factor-induced cell proliferation. Temsirolimus inhibits mTOR-dependent protein translation induced by growth factor stimulation. Tumour growth may also be affected indirectly by the inhibition of other factors such as VEGF.

Temsirolimus has UK marketing authorisation for the first-line treatment of people with advanced RCC who have at least three of the six following prognostic risk factors:

1. less than 1 year from time of initial RCC diagnosis to randomisation or initiation of treatment
2. Karnofsky performance status of 60–70
3. haemoglobin less than the lower limit of normal
4. corrected calcium greater than 10 mg/100 ml (or 2.5 mmol/litre)
5. lactate dehydrogenase more than 1.5 times the upper limit of normal
6. More than one metastatic organ site.

Temsirolimus 25 mg infused over 30 to 60-minute once weekly
The patient should be given intravenous diphenhydramine 25 to 50 mg (or similar antihistamine) approximately 30 minutes before the start of each dose of temsirolimus.

**Funding of treatment with Everolimus in TKI failure is available through the Cancer Drugs Fund**

Everolimus is a derivative of the natural macrocyclic lactone sirolimus and has both immunosuppressant and antiangiogenic properties. It targets the cellular protein mTOR, a regulator of signalling pathways associated with the abnormal growth, proliferation, and survival of cancer cells.

Everolimus is indicated for the treatment of patients with advanced renal cell carcinoma, whose disease has progressed on or after treatment with VEGF-targeted therapy
The recommended dose is 10 mg everolimus once daily. Treatment should continue until disease progression or until unacceptable toxicity occurs.

### 9.12 Follow Up of RCC

Follow up of patients with RCC after surgical treatment is recommended to detect local recurrence (1.8%) and distant metastases as early as possible to permit additional treatment when indicated and if possible. Prognostic factors and the type of surgical intervention are relevant in determining the most efficient follow up regimen. Prognostic factors are tumour stage according to the TNM system, positive margins, grade and multifocality.

After nephron sparing tumour resection (elective or mandatory indication), the local recurrence rate may vary between 0 and 10%. In a small proportion of patients with genetic predisposition, a different follow-up procedure maybe required.

Follow-up should be based on risk stratification.

At each time interval clinical review and routine bloods. EAU guideline follow-up should be followed.
RN = radical nephrectomy; PN = partial nephrectomy; CXR = chest X-ray; US = ultrasound of kidneys and renal bed; CT = CT of chest and abdomen; cryo = cryotherapy; RFA = radiofrequency ablation.

Post-operative visit at 6 weeks following surgery - wound check, pathology results and informing the patient of the MDT discussion.

<table>
<thead>
<tr>
<th>Risk profile</th>
<th>Treatment</th>
<th>Surveillance</th>
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<tbody>
<tr>
<td></td>
<td>6 months</td>
<td>1 year</td>
</tr>
<tr>
<td>Low</td>
<td>RN/PN only</td>
<td>CXR and US</td>
</tr>
<tr>
<td>Intermediate</td>
<td>RN/PN/cryo/RFA</td>
<td>CT</td>
</tr>
<tr>
<td>High</td>
<td>RN/PN/cryo/RFA</td>
<td>CT</td>
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10. Prostate Cancer

Background
Cancer of the prostate (CaP) is now recognised as one of the principal medical problems facing the male population. In Europe, an estimated 2.6 million new cases of cancer are diagnosed each year. Prostate cancer constitutes about 11% of all male cancers in Europe and accounts for 9% of all cancer deaths among men within the European Union (EU).

By the time of diagnosis, only 55% of tumours are clinically localised in the absence of an organised screening programme. Even in modern series, 30-45% of patients with clinically localised disease are found to have extracapsular extension at pathological staging.

10.1 Diagnosis
Prostate assessment clinics are provided by each urology department. The main diagnostic tools used to look for evidence of Cancer of the Prostate include digital rectal examination (DRE), serum concentration of prostate-specific antigen (PSA) and transrectal ultrasonography (TRUS). Diagnosis depends on the presence of adenocarcinoma in operative specimens or prostate biopsy cores. Histopathological examination also allows grading of the tumour.

Prostate Biopsies
Ultrasound-guided transrectal 18G core biopsy has become the standard way to obtain material for histopathological examination. Multiple cores can be taken under local anaesthesia with antibiotic prophylaxis. Blind transrectal biopsies may be obtained in clinical T3-T4 disease. Exceptionally treatment may be initiated without histological diagnosis, when PSA is high and the prostate is clinically malignant and the patient’s general condition is poor.

10.2 Staging and Pathology
All tumour specimens will be handled and recorded according to the Royal College of Pathologists Minimum dataset for prostate Cancer histopathology reports, April 2000 incorporating the TNM staging 6th edition (2002).

The primary extension assessment of CaP is usually made by DRE, PSA measurement and bone scan, supplemented with computed tomography (CT)/magnetic resonance imaging (MRI) and chest X-ray in specific situations.

T-staging
The first level is the assessment of local tumour stage, where the distinction between intracapsular (T1-T2) and extracapsular (T3-T4) disease has the most profound impact on treatment decisions. MRI of the prostate and pelvis should be performed in all patients who are considered for radical prostatectomy.

N-staging
N-staging should only be performed when the findings will directly influence a treatment decision. This is usually the case in patients for whom potentially curative treatments are planned.

M-staging
The axial skeleton is involved in 85% of patients dying from CaP. The presence and extent of bone metastases accurately reflect the prognosis for an individual patient.
Bone scintigraphy remains the most sensitive method of assessing bone metastases and should be obtained in all patients presenting with a PSA greater than 10ng/ml and those with Gleason 8-10 disease.

In patients suitable for radical treatment with equivocal bone scan MRI axial skeleton should be considered.

Besides bone, CaP may metastasise to any organ, but most commonly it affects distant lymph nodes, lung, liver, brain and skin. Clinical examination, chest X-ray, ultrasound, CT and MRI scans are all appropriate methods of investigation, but only if symptoms suggest the possibility of soft tissue metastasis.

10.3 TNM Staging

10.31 Prostate

Tx  Primary tumour cannot be assessed
T0  No primary tumour
T1a  Impalpable, present in <5% of TURP
T1b  Impalpable, present in >5% of TURP
T1c  Impalpable, identified on needle biopsy
T2a  Confined to prostate, involves \( \frac{1}{2} \) of one lobe or less
T2b  Involves more than half of one lobe but not both lobes
T2c  Involves both lobes, confined to prostate
T3a  Extracapsular extension
T3b  Tumour invades seminal vesicles
T4  Tumour invades other adjacent structures
Nx  Lymph nodes cannot be assessed
N0  No lymph node metastases
N1  Metastasis in regional lymph nodes
Mx  Distant metastasis cannot be assessed
M0  No distant metastasis
M1  Distant metastasis

10.32 TCC of prostate

Tis  Carcinoma in-situ of prostatic urethra or ducts
T1  Tumour invades subepithelial connective tissue
T2  Tumour invades periurethral muscle, prostatic stroma or corpus spongiosum
T3  Tumour invades any of the following: corpus cavernosum, beyond prostatic capsule, bladder neck
T4  Tumour invades any other adjacent organs
Nx  Lymph nodes cannot be assessed
N0  No lymph node metastases
N1  Metastasis in single node 2cm or less max. dimension
N2  Metastasis in single node >2cm, or multiple nodes
Mx  Distant metastasis cannot be assessed
M0  No distant metastasis
M1  Distant metastasis
10.4 Treatment

Deferred Treatment
Deferred treatment/active surveillance may be considered in patients with localised disease and low risk disease.

Treatment of Localised Disease
Definitive treatment options of radical surgery, external beam radiotherapy, and iodine seed brachtherapy High Intensity Focused Ultrasound (HIFU) may be discussed with patients although at present requires exceptional funding from PCTs and should be used in the context of clinical trails and prospective data capture. Those patients selected for radical prostatectomy should be referred to the Cancer Centre in Hull. All patients should have the opportunity to talk to their urologist and radiotherapist.

Radical Prostatectomy
The surgical treatment of Prostate Cancer consists of radical prostatectomy, meaning the removal of the entire prostate gland between the urethra and bladder, with resection of both seminal vesicles.

Indications
Presumably curable Cancer of the Prostate in patients with a life expectancy of more than 10 years:
- Stage T1a, when the expected survival is 15 years or more, or when high grade
- Stage T1b, T2
- Stage T1c, when presumably not insignificant
- Stage T3, in selected patients

10.5 Definitive Radiation Therapy

Conventional external beam radiation therapy
Clinically localised CaP (T1-T2, Nx-N0, M0-MX)
Radiation therapy may be effective in the treatment of patients with localised prostate cancer. Neo-adjuvant antiandrogen therapy may decrease the volume of the prostate and improve overall results. LH-RH therapy is recommended for 3 months prior to and after radiotherapy.

Interstitial radiotherapy (brachytherapy)
In order to deliver higher radiation doses to the prostate while sparing the surrounding tissue, the technique of interstitial radiotherapy has been refined and popularised during the last few years. At the moment, brachytherapy is available in Leeds, but a service in Hull is planned to start in 2008.

Patients who express an interest in brachytherapy and appear suitable for this treatment should be referred to Cookridge Hospital in Leeds until such time as brachytherapy is available in Hull.

High Intensity Focused Ultrasound (HIFU)
The role of HIFU has yet to be fully evaluated.
10.6 Hormonal Therapy (Excluding Antiandrogens)

Major categories of hormonal therapy for Cancer of the Prostate

**Surgical castration**
The declining incidence of CaP patients presenting with metastatic disease in recent years, combined with a shift to earlier stages at diagnosis and the development of pharmacological approaches to hormonal manipulation, have led to a shift away from surgical castration.

LHRH-agonists have become the preferred method of androgen ablation in patients with advanced CaP, as their use is more acceptable to many patients than orchidectomy.

Currently available preparations include goserelin, leuprolin, buserelin and decapeptyl, in monthly or 3 monthly depots. LHRH-antagonists are now being developed but their role is not fully evaluated.

**Intermittent androgen blockade (IAB)**
Phase II trials have demonstrated the feasibility of IAB but lack the statistical power to show its equivalence to continuous androgen blockade. Despite the lack of data, IAB is now widely used in patients with CaP. IAB might provide a more tolerable and more economical form of hormonal therapy for younger men who are likely to be receiving hormonal treatment for many years. Given the lack of sufficient long-term data it is mandatory to explain to the patient that IAB has not been fully evaluated compared to standard androgen blockade, and to record the fact that the patient understands this distinction. Phase III trials to evaluate the comparative efficacy of IAB are now underway.

10.7 Hormonal Therapy with Antiandrogens

Androgen deprivation can be achieved either by suppressing the secretion of testicular androgens by means of surgical or medical castration, or by inhibiting the action of the androgens at the cellular level using compounds known as antiandrogens. Alternatively, these two treatment modalities can be combined in order to achieve what is commonly known as complete androgen blockade (CAB).

**Non-steroidal antiandrogens**
Two non-steroidal antiandrogens are currently available:

- Flutamide: 250 mg three times daily.
- Bicalutamide: 150 mg/day

Antiandrogen monotherapy has been suggested to be an effective tool for the management of locally advanced CaP as a first-line therapy in selected cases, i.e. in younger patients with locally advanced or low-volume metastatic disease (PSA level < 100 ng/mL), for whom quality of life and preservation of sexual function are important.

**Steroidal antiandrogens (CPA)**
Cyproterone acetate (CPA) 100mg tds is a potent steroidal antiandrogen and has gestogenic properties leading to the suppression of LH and testosterone production. It is also useful in the treatment of hot flushes caused by LHRH analogues, at a dose of 50mg bd.
10.8 Combination therapies

**Combined androgen blockade**
Despite the plethora of studies evaluating CAB in which LHRHa or surgical orchidectomy is supplemented by adding an antiandrogen, there seems to be a lack of consensus as to its value in the management of CaP. A combination of LHRH analogue and bicalutamide 50mg daily offers a very moderate survival advantage in younger men with low volume metastatic disease compared to LHRH analogue alone.

10.9 Follow Up

**After Treatment with Curative Intent**
Curative treatment is defined as radical prostatectomy or radiotherapy, either by external beam radiation or an interstitial technique, or a combination of these

**PSA Monitoring**
The measurement of PSA level is a cornerstone of follow-up after curative treatment. PSA recurrence nearly always precedes clinical recurrence, in some cases by many years. It is recommended that the finding of a single, elevated, serum PSA level should be re-confirmed before treatment is altered.

**Definition of PSA progression**
The level of PSA at which to define treatment failure differs between radical prostatectomy cases and radiation-treated cases. Following RRP, two consecutive values of 0.2 ng/ml or greater appear to represent an international consensus defining recurrent cancer. Following radiation therapy, a reasonable definition of biochemical relapse is a rise in PSA of 2mg/l above the nadir.

**PSA monitoring after radical prostatectomy**
PSA is expected to be undetectable within 3 weeks after a successful radical prostatectomy. A persistently elevated PSA level means that PSA-producing tissue remains in the body. A rapidly increasing PSA level immediately after surgery may indicate rather distant metastases, those with a PSA doubling time < 3 months may have a poorer prognosis. A later and slowly increasing concentration of PSA is most likely to indicate local disease recurrence. The time to PSA recurrence and tumour differentiation and margin status are also important predictive factors distinguishing between local and systemic recurrence.

**PSA monitoring after radiation therapy**
The PSA level falls slowly after radiotherapy compared with radical prostatectomy. The optimal cut-off value for a favourable PSA nadir after radiotherapy is somewhat controversial. The interval before reaching the nadir PSA may be very long and can sometimes take up to 3 years or more. PSA should be monitored every 6 months.

**Digital rectal examination (DRE)**
It is very difficult to interpret the findings of DRE after curative therapy, especially after radiotherapy. A newly detected nodule should raise the suspicion of local disease recurrence.

**Bone scintigraphy**
The purpose of bone scintigraphy is to detect skeletal metastases. It is not recommended for the routine follow-up of asymptomatic patients, but may be indicated in individuals with elevated PSA levels for whom the findings will affect the treatment decision.

It is also indicated in patients with symptoms arising from the skeleton, since metastatic disease may occur even if PSA is undetectable.
When to follow-up?
PSA measurement, disease-specific history and DRE are recommended at the following intervals: 3, 6 and 12 months post-operatively, every 6 months thereafter until 3 years, and then annually.

Follow-Up after Hormonal Treatment
A large proportion of the patients treated with hormonal therapy have either metastatic or locally advanced tumours at diagnosis. The main objectives of follow-up in these patients are to monitor the response to treatment, to ensure compliance with treatment, to detect potential complications of endocrine therapy and to guide the modalities of palliative symptomatic treatment at the time of hormonal escape

10.91 How to follow-up?

PSA monitoring
Prostate-specific antigen is a good marker with which to follow the course of metastatic CaP. It is well established that regular PSA control in asymptomatic patients allows the earlier detection of biochemical escape, as the rise in PSA level usually precedes the onset of clinical symptoms by several months. Clinical disease progression with normal PSA levels has been reported to occur in 15-34% of cases. Alkaline phosphatase and its bone-specific isoenzymes may be used to monitor patients with stage M1b disease. These markers have the advantage of not being directly influenced by hormonal therapy compared with PSA.

When to follow-up?
After initiation of hormonal treatment, it is recommended that patients be followed-up at 3 and 6 months, thereafter at 6 monthly intervals until progression.

10.10 Treatment of Biochemical Failure after Treatments with Curative Intent

Rising PSA following curative treatment
Once PSA relapse has been diagnosed, it is of major importance to find out whether the recurrence has developed at local or distant sites. TRUS, MRI of pelvis and bone scans will sometimes indicate the site of recurrence, but often no site can be identified (PSA-only recurrence).

With regard to PSA relapses following radiation therapy, routine prostate biopsy should no longer be performed for the evaluation of PSA-only recurrences unless salvage radical prostatectomy or other salvage procedures are being considered.

10.11 Treatment of PSA-only recurrences

PSA-only recurrence after RRP
After RRP, therapeutic options include: observation; radiation therapy to the prostatic bed; (complete) androgen blockade; intermittent androgen deprivation. The same therapeutic options might be applied for PSA recurrences following radiation therapy; in addition, salvage prostatectomy, cryotherapy and HIFU might be indicated in carefully selected patients.

Radiation therapy for PSA-only recurrence
There is lack of data of prospective randomised trials to show the benefit of radiotherapy for PSA only recurrence following RRP.
Hormonal therapy
Hormonal therapy might be considered as an immediate therapeutic approach for patients who have unfavourable prognostic factors after radical prostatectomy indicating systemic disease, such as pre-radical prostatectomy PSA of > 20 ng/ml, pT3b, pTxN1, and extensive positive surgical margins and PSA doubling time of <3 months after surgery. Recommendations for optimal therapeutic management of PSA-only recurrences following RRP or radiation therapy are difficult to make since we cannot rely on prospective randomised trials.

Observation
Observation until the development of clinically evident metastatic disease might represent a viable option for patients with a Gleason score ≤ 7, PSA recurrence longer than 2 years after surgery, and a PSA doubling time longer than 10 months.

10.12 Second-Line Treatment of Cap after Hormonal Therapy

Androgen deprivation in androgen-independent Cancer of the Prostate
Androgen-independent Cancer of the Prostate implies that disease progression occurs despite castration. Therefore, castration levels of testosterone must first be documented to confirm adequate antiandrogen therapy and compliance. There is debate whether LH-RH analogues should be continued indefinitely.

Antiandrogen withdrawal syndrome
Approximately one-third of patients on CAB will show a biochemical response to oral antiandrogen withdrawal as indicated by a ≥ 50% PSA decrease; however, observation remains a viable choice for asymptomatic patients.

Secondary hormonal therapy
Except in patients with non-castration testosterone levels, it remains difficult to predict which subset of individuals is most likely to respond to secondary hormonal strategies. Bicalutamide 50mg daily may produce a biochemical response in these patients. Stilboestrol 1mg daily plus aspirin 75mg daily may produce a biochemical response.

Non-hormonal therapy
Prednisolone 10mg b.d. is very effective in hormone ecaped disease, improving appetite and well-being. A reduction of pain score and biochemical responses are often observed. Cytotoxics, eg taxanes may give benefit to some patients but are toxic.

Other treatments
The majority of patients with HRCaP have painful bone metastases. Solitary painful bone lesions often respond to one or two doses of external beam radiotherapy, but the beta-emitting radioisotope strontium-89 can partially or completely decrease bone pain in up to 70% of patients.

Critical issues of palliation must be addressed while considering additional systemic treatment, including management of pain; constipation, anorexia, nausea, fatigue and depression, which frequently occur (i.e. palliative external beam radiation, cortisone, analgesics and antiemetics).

Recently, the use of bisphosphonates has demonstrated a significant reduction or even complete pain relief in patients with symptomatic osseous lesions, although overall QOL does not significantly improve. The exact role of these drugs and the timing of therapy is still a matter for further research.
10.13 Hormone-Refractory Prostate Cancer (HRPC)

HRPC is usually a debilitating disease, often affecting the elderly male. A multidisciplinary approach is required with input from medical oncologists, radiation oncologists, urologists, nurses and social workers.

The median survival of men with hormone-independent or hormone-resistant prostate cancer (HRPC) is approximately 12 months, and has not been prolonged by any therapy, until recently. Chemotherapy was previously considered to be relatively ineffective in HRPC. In early trials (many of which included disease stabilization or lack of progression in the definition of objective response), objective response rates were 10 to 20 percent, and median survival did not exceed 12 months. However, newer regimens, particularly those that include docetaxel, are associated with higher rates of both objective and biochemical (prostate specific antigen [PSA]) response, and importantly, median survival durations that approach two years.

The optimal treatment for men with HRPC has become clearer with the recent demonstration of a survival benefit from docetaxel-based regimens as compared to mitoxantrone/prednisone. Based upon the results of the TAX-327 trial, every three week administration of docetaxel plus continuous daily prednisone is approved for treatment of men with HRPC. With longer follow-up, the survival benefit of every three week docetaxel has persisted (median survival 19.3 versus 16.3 months for mitoxantrone/prednisone). The corresponding three year survival rates were 18 versus 14 percent. This combination should now be considered the standard of care. NICE has approved it.
10.14 Treatment Algorithm for Hormone-refractory Prostate Cancer (HRPC)

The Network agreed chemotherapy regimens are available on the NEYHCA website:
(Please press control and click on the link below)
http://www.hyccn.nhs.uk/NetworkGuidelinesAndPublications/ChemotherapyAndPharmacy.htm
These regimens are regularly updated on the NEYHCA website.
11. Testicular Cancer

These patients should be referred to the Supra Regional Testicular Cancer MDT, based within the Yorkshire Cancer Network, to advise regarding the patient’s treatment pathway. (See Appendix iii for pathway)

For full NEYHCA & YCN guidelines for Testicular Cancers v1.3, please press control and click on the link below

The full follow up protocols can be found on pages 29 to 43 of the NEYHCA / YCN guidelines.

The following section has been taken from the NEYHCA & YCN Guidelines for the Management of Testicular Cancers

Introduction
The initial diagnosis and surgical management of Testicular Germ Cell Tumours is a Cancer Unit activity but the further investigation and management of the patient should be by a Specialised Multidisciplinary Team at the Cancer Centre. Urgent referral for this is paramount for successful outcomes. A successful Germ Cell Tumour Service requires a Multidisciplinary Team ethos and a full range of supportive services such as Specialised Nursing, Pharmacy, Radiology, Social Services, Psychological Support Services, Assisted conception and Fertility Services, and Specialist Surgical Services (abdominal and thoracic).

The regional service in Leeds is involved in clinical trials and studies at local, national and international levels (MRC, EORTC and NCRI) supported by Research Nurses based locally.

Guidelines on the diagnosis and treatment of testicular cancer already exist at the national and international level, in particular the Royal College of Radiologists, Clinical Oncology Information Network (COIN) in association with the Scottish Intercollegiate Guidelines Network (SIGN) Guidelines) on the Management of Adult Testicular Germ Cell tumours, and the European Consensus Guidelines of 2008 have already been adopted by the testicular tumour service in Yorkshire and should for the most part be followed.

Screening
There is no good evidence that screening programmes for men are indicated in this disease which is rare and the detection rate is likely to be small.

11.1 Presentation and early diagnosis
Testicular cancer has high growth rates and early detection and diagnosis is important. Delaying presentation is a greater problem than delaying referral and education programmes aimed at young men to inform them about the disease and its curability should be supported.

General Practitioners will see only infrequent cases of testicular cancer and need to have a low threshold for referral to specialist services for men presenting with scrotal masses. Between 80% and 90% present with an enlarged testicle or a lump on the testicle; pain is not usually a feature although the patient may complain of a dragging sensation in the groin or scrotum. The presence of pain should not prevent referral. Some patients may present with a decrease of size of the affected testis and rarely patients can present with a hydrocele, gynecomastia or backache as the presenting non-specific symptom. Patients need careful clinical assessment of the testis to distinguish between masses arising from the body of the testis and other intra-scrotal swellings.
Urgent direct referral from the GP to the local Urologist may achieve a quicker distinction between testicular and epididymal masses, easier access to testicular ultrasonography, and any patient suspected of having a testicular malignancy with a lump in the testis, doubtful epididymo-orchitis or orchitis not resolving within two weeks should be referred urgently for urological assessment and the patient should be seen urgently (within two weeks of referral). Any ultrasound request should be urgent and performed within two weeks. If this investigation is requested by a GP and is positive there should be a direct route for referral from the Radiology Department to the local Urologist (same or next working day).

11.2 Primary investigation and treatment

Having been referred to a Urological Surgeon in the local cancer unit the patient should receive the following assessments:
Clinical history and examination are important, particularly detecting backache, weight loss and lymph nodes in the neck.

Investigations must include:
- Ultrasound of both testes (if not already performed).
- This investigation is highly specific for the diagnosis of intra-testicular masses. Ultrasonography of the abdomen is also advisable in the presence of testicular lump for the detection of possible enlarged abdominal lymph nodes.
- Chest x-ray will often determine whether the patient has pulmonary metastases or not.
- The serum tumour markers Alpha Feta Protein (AFP) and Human Chorionic Gonadotrophin (HCG) and the non-specific serum enzyme lactate dehydrogenase (LDH) are central for staging, determining prognosis, treatment and follow-up of testicular germ cell tumours. One or more of these is raised in 75% of cases of teratoma and 35% of cases of seminoma.

Pre-operative and post-op tumour marker assay and review of these investigations is of paramount importance.

Then further assays should be repeated at least once post-operatively prior the referral of the patient to the cancer centre. Post-operative tumour markers on day 1 after orchidectomy are sufficient. Patient recall to Urology for post-operative markers is not necessary if day 1 post-operative markers are performed and the results examined.

If markers are stable or have fallen standard referral by fax is sufficient. If day 1 markers have not been performed post-operative markers should be arranged and reviewed as soon as this becomes apparent by the referring cancer unit Urology team. Further staging investigations can be deferred until after the orchidectomy and performed by the Germ cell team.

NB. Patients with high serum tumour markers and wide-spread metastases at presentation should be referred immediately to the regional germ cell clinic for primary chemotherapy prior to orchidectomy, which can be delayed until potentially life-saving chemotherapy has been delivered at the cancer centre.

The indication for discussing referral to the cancer centre prior to surgery with Dr Dan Stark (or deputy) in Leeds should be:
1. Metastatic disease visible on chest Xray
2. Abdominal mass clinically evaluable, palpable on ultrasound
3. Clinically significant cervical or axillary lymphadenopathy
4. Weight loss >10% in the presence of a clinical testicular mass

Any one of these is sufficient for pre-operative discussion.

If the markers have increased between pre and post-op, this patient is at high risk, and telephone referral to the Germ Cell Services in the cancer centre is advised.
11.3 Primary Surgical Management

An orchidectomy should be performed through an inguinal incision with division of the cord at the internal ring. Prior to this the testis having been delivered through the wound and the cord occluded using non-crushing clamps the testis is inspected and if the mass is cancerous the operation is completed. On the rare occasion when the diagnosis is in doubt, representative biopsies may be sent for frozen section and if malignancy is not confirmed then the testis can be reconstituted and replaced and the patient placed on close follow up. Scrotal exploration should usually be avoided with testicular masses, but if performed for what was thought to be an inflammatory non-malignant condition, then an orchidectomy is performed with the division of the cord as high as possible.

There are three things which need to be considered prior to orchidectomy in cases of testicular lump/swelling.

First should be a consideration of the patient's fertility. If he has been having difficulty in fathering a child or has a history of infertility, referral for potential sperm banking prior to the orchidectomy is recommended, since only the diseased testis may be capable of active spermatogenesis. Referral for sperm banking would normally delay the operation of orchidectomy by only a few days, and so is unlikely to adversely affect eventual outcome.

Second patients may suffer an alteration of body image having undergone an orchidectomy and consideration should be given to the placement of a prosthesis either at the time of the orchidectomy or in the future and patients should be advised about this possibility. All patients should be offered a prosthesis at the time of surgical planning, but if there is doubt they are encouraged to wait and discuss it at a later date.

Third consideration should be given to biopsying the contralateral testis in patients at high risk of having carcinoma in situ (intratubular germ cell neoplasia, ITGCN) in that testis.

ITGCN occurs in approximately 5% of men with testicular cancer in the opposite testis and is thought to progress to invasive germ cell tumour in almost 100% of cases within a ten year time frame. Patients at risk are of younger age (less than 30 years of age), have a small contralateral testis (less than 16ml), a history of maldescent of the testis or a previous history of subfertility/low sperm count. If a biopsy is considered this should be performed as a separate procedure to the orchidectomy (regowning and reglovung, separate instruments) the specimens should be separate to the orchidectomy specimen and consideration given to referral for central pathology review. Patients with intratubular germ cell neoplasia will be offered a course of radiotherapy to that testis after consideration of fertility issues (see later).

11.4 Pathology of the Primary Specimen

There should be a local protocol for the handling and preservation of the testis. Valuable information may be lost to the Pathologist through over-energetic disruption by the operating surgeon. The specimen should be bi-valved through the testis and epididymis either in theatre or as soon as it arrives in the Pathology Department to allow for proper fixation in an adequate volume of formaldehyde fixative. Multiple blocks should be taken and in addition to a description of the macroscopic and microscopic size and appearances of the specimen (using the classification of the British Testicular Tumour Panel and Registry and the World Health Organisation) the Pathologists should comment upon

- The presence or absence of invasion of blood vessels or lymphatic vessels by tumour
- Extension of the tumour into the rete testis, epididymis tunica vaginalis and spermatic cord
- And whether there is involvement of the cut end of the cord or not.
Central review of the pathology by the cancer centre and multidisciplinary team pathologist is mandatory.

This process of review should be commenced by the cancer unit pathologist at the point they become aware of the germ cell tumour is either the diagnosis or within their pathological differential diagnosis. The processing and reporting on testicular specimens at the local level should be undertaken as high priority and ideally a histology report be issued within one week of the operation and forwarded to the germ cell MDT pathologist.

11.5 Referral to the Cancer Centre

As well as the assaying of serum tumour markers post-operatively, referral to the cancer centre multidisciplinary team should be a matter of priority. The YCN referral pro-forma should be completed by the surgeon performing the orchidectomy by the end of the next working day after the completion of the operation and referred to Dr Stark by Fax using the Yorkshire Cancer Network Pathway. This ensures the patient can be seen at the centre within two weeks of the orchidectomy.

It is not acceptable for an orchidectomy to be performed and an outpatient appointment made for the patient, typically one month ahead, and for the referral to be made at that stage. Nor is it acceptable for orchidectomy specimens to be booked to local MDT meetings with referral following that.

If there are specific reasons for review or pathology prior to referral, these merit a discussion of the case with the germ cell MDT members to avoid unacceptable patient delays.

There is no need (in fact it is often unhelpful) for further investigations for staging purposes to occur in the cancer unit, since this will be undertaken at the cancer centre and there is good evidence that, where examination such as serum tumour markers and CT scanning are going to be performed on a regular basis, these investigations are best performed according to the same protocol using the same techniques and the same hardware and report by the same laboratory and clinical staff.

11.6 Investigation and Staging

There is good documentary evidence that the treatment of testicular cancer in the specialised centre leads to improved results. At the point of clinical suspicion of germ cell tumour, prior to final pathological confirmation, patients should be referred to the cancer centre lead clinician and MDT. The patient would normally be seen on the Wednesday morning germ cell clinic within two weeks of surgery if the referral pro-forma is faxed within 36 hours of orchidectomy including the required details.

With timely referral patients will also be contacted by the germ cell support nurse by telephone ahead of that appointment. Therefore it is crucial the patient is made aware of the potential cancer diagnosis explicitly before discharge after orchidectomy.

It is of note that if pathology and tumour marker results are not available at the time of referral these reports will be sought from the cancer centre. If the level of pre and operative serum tumour marker results and histology are available, including them with the accompanying fax is very helpful, but not essential. But it is essential they have been sent for testing.
At the patient’s first attendance of the Germ Cell Tumour Clinic

- The relevant clinical history will be confirmed and further details regarding
  - The duration of symptoms,
  - Post-operative progress,
  - History of maldescent and inguinal hernia repair in infancy or childhood,
  - Family history of testicular cancer,
  - History of infertility,
  - Paternity and wishes about the possibility of further paternity will be obtained
  - Relevant previous medical history and clinical examination.

- Clinical examination will include
  - Orchidectomy scar examination
  - Examination of the remaining testis for lumps, size and nature.
  - Examination for masses in the abdomen or in regional or distant lymph nodes.

The patient has the diagnosis confirmed to them based upon local pathology report and is made aware of the possible therapeutic options and likely percentage chances of cure, although final definition of the latter will have to wait until staging examinations are completed and reviewed. Patients should be encouraged to bring their partner/parents or other relative/significant other person to be present at the consultation.

At the initial attendance the patient will have a further estimation of his serum tumour markers, full blood count and routine biochemistry performed. If the referral from unit to centre is timely staging CT scan of chest, abdomen and pelvis will be performed on the day of initial clinic attendance in the centre, always within one week of that appointment and the result is available for the next week’s clinic. The CT scan should be performed according to a defined protocol and should be reviewed by a Radiologist experienced in the interpretation of germ cell tumour patient’s investigations. Any previous radiology should also be reviewed by this Radiologist.

The overall clinical scenario with the outcome of the initial germ cell clinic attendance, central specialist review of staging investigations and tumour pathology will take place at the regional MDT meeting, within 48 hours of new patient assessment if referral and transfer of materials has been timely, always within two weeks of the first germ cell clinic visit.

Patients all have easy access to the Specialist Nurses present in that clinic, to be able to re-visit areas of concern or in need of clarification. At that first attendance there should be the facility for referral either then or at a later date to Specialist Social Work Support and Psychological Support (initially through a Clinical Nurse Specialist)

Sperm banking (at the Assisted Conception Unit Leeds Teaching Hospitals NHS Trust), including written and verbal information about that service, is offered to all patients in whom it is envisaged that the patient may require chemotherapy or radiotherapy that may affect fertility.

Other considerations at the primary consultation at the germ cell tumour clinic will include involvement of Specialist Nurses/Social Workers from the Teenage and Young Adult Regional Principal Treatment Centre at Leeds Teaching Hospitals Trust who regularly attend the clinic for those patients in their teenage years/early twenty’s, consideration of support for those in education/higher education with regard to course work/examinations etc, financial and other considerations arising as a result of the diagnosis and its possible treatment, and an enquiry made as to whether the patient has critical illness insurance cover on which a claim may be made.
The serum tumour markers, (LDH, AFP and hCG) having been performed prior to orchidectomy, day 1 post-operatively, and then at the new patient review in germ cell clinic two weeks later, they will be repeated weekly if elevated until they have fallen within the normal reference range, before starting any adjuvant treatment for Stage I disease.

Patients will be staged according to the anatomical staging system devised at the Royal Marsden Hospital (RMH) – see table 1 - based upon the clinical examination and the CT scan. Magnetic resonance imaging is equivalent to CT scanning for the detection of pelvic or abdominal lymph nodes and involves no ionising radiation but is of little value in the evaluation of the chest. This modality of imaging may become more important for follow-up in the near future.

Patients with evidence of metastases will also be assessed according to the International Germ Cell Cancer Collaborative Group Prognostic Grouping (see table 2) that divides patients into good, intermediate and prognostic groupings according to the pathological tumour type, site of the primary tumour, the levels of serum tumour markers and the presence or absence of non-pulmonary visceral metastases. This classification is of clinical value in advising patients of their relative prognosis and in determining the therapeutic approach.

Thus the majority of patients should be made aware within three weeks of referral to the germ cell tumour clinic, 3 weeks and two days from surgery, of the management approach to be adopted in their particular case. In particular the patient should be aware of the nature, extent and likely success of the treatment proposed. There may be some medical delay in those patients with serum tumour markers which are still falling post-orchidectomy but according to the natural half life of the particular marker until normalisation to distinguish stage 1 disease fro stage 1M.

11.7 Management of Disease by Type, Stage, and other Risk Stratification Systems

Testicular Intratubular germ cell neoplasia (carcinoma in situ – CIS).
ITGCN occurs in approximately 5% of men with testicular cancer in the opposite testis. Patients identified as having intratubular germ cell neoplasia (ITCGN) are at great risk of developing a second invasive cancer in the remaining testis.

Patients at risk are of younger age (less than 30 years of age), have a small contralateral testis (less than 16ml), a history of maldescent of the testis or a previous history of subfertility/low sperm count. It is thought to progress to invasive germ cell tumour in almost 100% of cases within a ten year time frame. This risk increases over time; 50% at 5 years, 70% at 7 years. These patients often have low sperm count or azoospermia, and poor endocrine/Leydig cell function, with elevation of luteinising hormone (LH), and a reduction in testosterone levels. In the first instance endocrine and fertility function may be monitored for some months in many patients to allow recovery from the surgical and non-surgical managements’ impact upon endocrine and fertility function.

Patients need to be warned early of the markedly increased risk of subsequent malignancy if treatment is not given. Management plans are made in the light of

- Patients who wish to father children
- The nature of the necessary treatment for the primary malignancy.
Management options include

- **Radiotherapy**: The germinal epithelium can be ablated easily with radiation and patients will be offered a two week course of radiation to the remaining testis (a dose of between 16 and 20 Gys in 10 Fractions over 2 weeks) to prevent progression to invasive disease whilst at the same time trying to preserve the hormonal function of the supportive stroma of the testis and thus hormone production. These patients also need to be made aware of the possibility of testicular failure and the potential need for hormone replacement therapy in the future. It is also recommended that the patient undergo a further testicular biopsy approximately six to nine months following radiation to ensure that the germinal epithelium has been ablated.

- **Orchidectomy**: Considered for patients who have completed their wish for family and already have or accept the need for endocrine replacement.

Systemic chemotherapy is not adequate treatment for intratubular germ cell neoplasia as late relapse has been described.

### 11.8 Management of Stage 1 Disease

Patients with Stage 1 disease have no clinical, radiological or serological evidence of persistent disease following orchidectomy. Patients with negative CT scans and clinical examination but still have raised tumour markers which do not fall to normal levels post orchidectomy are staged as Stage 1M (RMH staging) and are treated as for metastatic disease (see below).

#### Stage 1 Seminoma

Patients with Stage 1 Seminoma have between a 12 and 32% chance of harbouring metastatic disease in the para-aortic lymph nodes or elsewhere. The MRC study TE19 has reported initial and follow up results indicating equivalence in terms of efficacy of one course of Carboplatin (AUC7) chemotherapy and para-aortic radiotherapy in the management of Stage I seminoma. There was lower short-term morbidity and greater patient convenience in the Carboplatin arm and a suggestion, provisional at this time, of a smaller number of contra-lateral new primary tumours in the group treated with Carboplatin.

Therefore patients may chose between chemotherapy given as per this trial and radiotherapy. The cancer specific survival of either management plan, or surveillance, approaches 98%.

Adjuvant radiotherapy for Stage I seminoma is given as 20 Gys in 10 daily fractions over two weeks. 10% of seminoma patients require a “dog-leg” shaped radiation field because of previous inguino-scrotal surgery or a scrotal orchidectomy, to cover the inguino-pelvic lymph nodes as well as the para-aortic nodes because of disruption of lymphatic drainage of the testis.

Patients make an informed choice between adjuvant chemotherapy and Carboplatin, adjuvant radiotherapy and surveillance. The clinicians are guided by two pathological prognostic factors in providing a recommendation to patients who wish; tumour size >4cm, and the presence of invasion of the rete testis.

Surveillance is an effective management strategy of stage 1 seminoma. In electing for surveillance clinicians should consider:

- Whether the patient has a reliable serum tumour marker,
- Whether follow up with regular CT scanning represent a satisfactory practical plan which the patient will comply with, and
- Whether the radiation from CT scanning required is acceptable to the patient.
- The patient understanding that will receive three cycles of BEP chemotherapy if they relapse. In less fit patients this is intensive treatment.
- The small but relevant risk of reduced fertility with any chemotherapy treatment.
Relapses often occur more than 5 years after orchidectomy so follow up often needs to be prolonged. The frequency of examinations and comparison between CT and MRI is currently subject to an MRC randomised controlled trial led internationally by Dr Jonathon Joffe.

Patients with combined seminoma/teratoma of the testis should be treated as though they had teratoma

**Stage 1 Teratoma Low Risk Patients**

Patients with combined seminoma/teratoma of the testis should be treated as though they had teratoma. Patients with stage 1 malignant teratoma (other than malignant teratoma differentiated) have a 30-50% risk of recurrence with surveillance alone.

The presence of lymphovascular invasion in the primary tumour histologically identifies a higher relapse risk group. The relapse rate for low-risk stage 1 teratoma patients is approximately 25 to 30%.

Consideration when selecting a patient for surveillance, as in seminoma, include:
- Whether the patients’ tumour is known to make serum markers.
- The acceptability for surveillance regimen in terms of compliance and radiation.
- The patient understanding that will receive three cycles of BEP chemotherapy if they relapse. In less fit patients this is intensive treatment.
- The small but relevant risk of reduced fertility with any chemotherapy treatment

The follow up schedule is intensive in terms of visits for serological and plain X-ray surveillance. The patient is required to attend monthly for the first year, bi-monthly for the second year, quarterly for the third year, six monthly until five years have elapsed post-orchidectomy and then annually to the tenth year, although the patient can always seek an earlier appointment should he suspect a recurrence is occurring. Serum tumour markers have to be performed at every attendance and CT scanning is undertaken twice according to the outcome of the MRC TE08 study. The patient undergoes routine clinical examination at every attendance and also undergoes further investigations should he develop significant symptoms.

If surveillance is judged impractical or unacceptable then consideration should be given to adjuvant chemotherapy with the same regimen as used in high risk Stage I teratoma (see below).

**Stage 1 Teratoma High-Risk Patients**

Patients with negative post-operative staging investigations but with lympho-vascular invasion in the primary tumour pathology have between a 40 and 60% risk of relapse. An MRC protocol administered two cycles of adjuvant BEP chemotherapy (Etoposide 360mg per metre squared per course). This was shown to reduce this risk of relapse to 1 to 2% and this approach is now the standard for this condition.

PET scanning has been examined to provide further risk stratification in Stage I non seminoma but there is insufficient sensitivity and specificity to be used at present (c.f. MRC study TE22).

For those patients with persistently elevated tumour markers or markers rising post-operatively (stage 1M) these patients have metastatic disease and should receive chemotherapy as per good prognosis metastatic non seminomatous germ cell tumour (three cycles of BEP).
11.9 Metastatic Disease

Seminoma
More than 80% of seminoma patients present with stage 1 disease; however, approximately 15% fall into the stage 2 category. The majority of those have stage 2A disease, with lymph node involvement less than 2cm in maximum diameter.

Patients with Stage 2A, and Stage 2B disease of less than 3cm are currently managed with a single dose of Carboplatin AUC 7 followed by para-aortic lymph node irradiation giving 30 to 35-36 Gys over 15 to 18 fractions of radiotherapy to a dog-leg field.

Patients with 2B, C or D disease, with a more than 3cm transverse diameter tumour are treated with multi-drug platinum-based chemotherapy (BEP or EP) according to their general health.

Patients with seminoma tend to be older than teratoma patients on the whole. Consequently, the chemotherapy for patients with metastatic seminoma is often individualised to the patient circumstances/fitness; older patients are more likely to have co-morbid conditions, including impaired renal function and to have a worse smoking history, which is the risk factor for toxicity rather than age of itself.

Carboplatin may be used in combinations as alternative to Cisplatin in exceptional circumstances in these patients. For patients with metastatic seminoma stage 3 and 4, there is no good evidence that Bleomycin adds to the efficacy of treatment.

Metastatic Teratoma
Considerable research effort at national and international levels has led to the development of successful regimes for this condition and emphasis being placed on the greater acceptability and convenience for patients with regimes in recent years without compromising effectiveness.

The IGCCG classification (Table 2) divides patients in to good, intermediate or poor prognosis depending on the highest assay of their serum tumour markers prior to chemotherapy, the presence of a mediastinal primary, or non-pulmonary visceral metastases.

The internationally standard regime for all patients with metastatic teratoma of the testis is BEP (including 500 mg/m2 per cycle of etoposide and 90IU per cycle of bleomycin).

Patients with good prognosis are treated with three cycles of BEP chemotherapy but if four cycles are used then Bleomycin is omitted for the fourth course since the recommended maximum dose of Bleomycin should not normally exceed 270,000 international units (270 mgs).

A recently reported joint MRC/EORTC randomised controlled trial (2 x 2 factorial design) has shown that three courses of “American” (Etoposide 500 mg per meter squared per course) BEP is effective as four courses and also that this treatment can be delivered without detriment to survival over three days rather than five days. Thus three cycles of American BEP delivered over a three night stay in hospital is now the standard treatment in Yorkshire for metastatic non-seminomatous germ cell tumours, including teratoma. There is scope for individualisation of treatment and particularly for those patients with potentially compromised renal or lung function, treatment can be taken rather more slowly and more than three courses of chemotherapy can be given for patients with anatomically high volume disease.

For intermediate and poor prognosis patients no treatment has been shown to be superior than four cycles of BEP chemotherapy (Etoposide 500 mgs per metre squared per course) as standard treatment. Studies recently completed examined intensifying BEP using GCSF support (‘accelerated BEP’), and an intensive multi-drug regimen within the TE23 national study.
One of the keystones to successful treatment for metastatic teratoma is the maintenance of the dose-intensity of treatment and the adherence to the treatment schedule.

Patients’ treatment cannot be delayed due to blocked beds and admissions have to be pre-arranged and if necessary take precedence over other patients having chemotherapy for non-curable conditions.

This has been facilitated in the last ten years by the development of supportive agents such as granulocyte colony stimulating factor (GCSF) and the development of improved anti-emetic regimes (e.g. 5HT3 antagonists). The local indications for GCSF in germ cell tumour management are:

- Dose delay due purely to neutropenia, not restricted by recovery of oral mucositis or low platelets.
- Acute support for life threatening septic shock with end organ failure
- Support for very unwell patients who are unlikely to tolerate neutropenia with sepsis.

It is easy to forget that this type of treatment in itself is potentially life threatening, and so patients and staff have to be regularly reminded of the potentially fatal consequences of ignoring symptoms of neutropenic sepsis and the need for a very rapid response in such circumstances. Potential neutropenic sepsis is a medical emergency.

11.10 Post Chemotherapy Masses

Seminoma
Resection for post chemotherapy residual masses in seminoma is not routinely indicated, as the complete remission rate for seminoma is extremely high and viable tumour is rarely found in resected specimens. Surgery is likely to be difficult and potentially dangerous due to lack of clear tissue planes.

Radiological assessment of residual masses is advised, and recent work has examined the role of carefully timed PET scans, with the possibility of post-chemotherapy/radiotherapy at a later stage for persistent masses which are increasing in size. However, the routine use of radiotherapy for residual masses is not recommended.

Teratoma
Residual masses may remain after chemotherapy and marker normalisation in teratoma patients. About 20% of these masses will contain viable tumour and of the remaining 80%, half will contain mature teratoma differentiated (TD) and half scar & fibrous tissue. Any masses greater than 1cm in diameter, in the presence of normalised or plateaued markers should be resected at post-chemotherapy retroperitoneal node dissection (PC-RPLND) to remove and treat TD, and to identify residual viable tumour. RPLND should be performed 4-6 weeks after completion of chemotherapy, if recovery from chemotherapy allows. To allow timely surgery, provisional theatre bookings for anticipated RPLNDs will be made at the MDT before chemotherapy. Provisional urological out-patient appointments can be made at the same time in discussion with the surgeons involved.

PC-RPLNDs should be performed as modified template dissections and full template RPLND reserved for the rarer chemotherapy-naive patient. Any template RPLND may necessitate sacrifice of a kidney or resection or reconstruction of the great vessels. RPLND by excision of masses bears a higher risk of disease recurrence than does RPLND by template dissection. RPLND should be undertaken by a limited number of surgeons. Such work is undertaken by two Urological Surgeons and one Thoracic Surgeon in Leeds at the present time. Vascular surgical assistance is freely available to support this service as necessary.
The pathology of the resected specimen should be undertaken or reviewed by a specialist pathologist working in the germ cell Multidisciplinary Team.

If resection is not possible should be kept under very close follow up radiologically.

Where viable germ cell cancer is found in the resected specimens further chemotherapy should be considered

**Treatment of Relapsed Disease**

Following treatment, patients are kept under review (see section on follow up) and following adequate treatment less than 10% of patients with good prognosis disease will relapse. This is rather higher in patients with intermediate and poor prognosis disease. The timing of relapse is important.

- Patients who progress on or relapse shortly after primary treatment are likely to have ‘primary platinum resistant’ disease and need an aggressive approach, as their prognosis is poor. In these circumstances alternative chemotherapy regimes may be used but if the disease is apparently localised to one anatomical site then a “desperation” operation may be performed urgently with potential curative results.
- Fortunately the majority of relapses recur after many months or possibly years after primary treatment and, again depending on the anatomical extent of the disease, the primary approach may well be surgical plus chemotherapy.
- One concern for physicians at the diagnosis of relapse is that growing disease sites may consist of growing teratoma differentiated, for which further chemotherapy will be ineffective. The radiological and tumour marker profile as well as the previous histology may help to judge the probability of growing teratoma differentiated syndrome in an individual patient.
- Growing TD can involve many retroperitoneal structures and although not metastatic local invasion can be life-limiting. Moreover residual unresected TD can undergo malignant transformation to undifferentiated germ cell tumour, carcinoma, sarcoma or mixed tumours.

Patients with rising markers after first line treatment require urgent restaging, which may need to include the brain and contralateral testis if the site of recurrence is not apparent on initial CT body. Some patients have rising markers with no apparent anatomical recurrence- we recommend surveillance and re-imaging in this situation, while accepting this is psychologically very difficult for most patients.

Patients relapsing after standard chemotherapy should be considered for clinical trials if possible. American TIP (Taxol, Ifosfamide and Platinum) or VIP (Vinblastine, Ifosfamide and Platinum) are considered in relapsed good/intermediate, and relapsed poor prognosis disease respectively. Both has approximately equivalent efficacy and stem cell harvest is more straightforward after VIP.

However, as with primary management, surgery should be considered as central to the treatment for late relapse and there may be an indication for surgery post chemotherapy in these patients.

At second relapse options are limited but include resection, palliative radiotherapy, re-induction chemotherapy followed by high dose treatment with Carboplatin/Etoposide/Cyclophosphamide with peripheral blood stem cell rescue.

**Central Nervous System Metastases**

CNS metastases may occur at either initial presentation, as an apparently isolated relapse site or as part of a chemo-resistant systemic relapse.
All patients with intermediate or poor prognosis disease should have CT screening for CNS metastasis at initial assessment. Patients presenting with brain metastases at initial presentation or at relapse following adequate treatment for other sites should be treated with curative intent and if possible referred for urgent neuro-surgical resection of operable lesions. Radiotherapy has a role in the relapsed patient with CNS disease, either as primary treatment or as an adjuvant to surgical resection. Patient with CNS disease following chemotherapy generally have a poor prognosis.

11.11 Follow Up for Testicular Cancer

The functions of follow-up are:

- To detect relapse at an early stage.
- To monitor and treat treatment-related toxicities.
- To detect contralateral testicular tumours
- To support the patient with regard to other consequences of cancer and its treatment, such as employment, fertility etc.

The follow up of testicular cancer varies widely- we have precise protocols, risk stratified, which are followed at Yorkshire Cancer centre.

The essential message to the patient about follow up is that the patient can request an early appointment or a further appointment at any time should be suspect that there is a recurrence or the development of a second primary tumour.

Intratubular Germ Cell Neoplasia

While patients are being followed up for a primary tumour in one testis, care must be taken not to overlook the contralateral or residual testis if it is affected by this premalignant condition. There is an indication for monitoring this testis with ultrasound scans if radiotherapy treatment is to be delayed for consideration for fertility issues.

Following radiotherapy, a biopsy should be performed between 6 and 12 months after the completion of radiotherapy to prove adequate ablation of the germinal epithelium and the patient should be followed up for a minimum of ten years, usually according to the schedule for the primary contralateral testis tumour.
### Table 1- RMH Staging

<table>
<thead>
<tr>
<th>Stage</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>No evidence of disease outside the testis</td>
</tr>
<tr>
<td>IM</td>
<td>As above but with persistently raised post-op tumour markers</td>
</tr>
<tr>
<td>II</td>
<td>Infradiaphragmatic nodal involvement</td>
</tr>
<tr>
<td></td>
<td>A: Nodes maximum diameter &lt; 2cm</td>
</tr>
<tr>
<td></td>
<td>B: Nodes maximum diameter 2-5 cm</td>
</tr>
<tr>
<td></td>
<td>C: Nodes maximum diameter 5-10 cm</td>
</tr>
<tr>
<td></td>
<td>D: Nodes maximum diameter &gt; 10 cm</td>
</tr>
<tr>
<td>III</td>
<td>Supra and infradiaphragmatic node involvement</td>
</tr>
<tr>
<td></td>
<td>A: Abdominal nodes &lt; 2cm</td>
</tr>
<tr>
<td></td>
<td>B: Abdominal nodes 2-5cm</td>
</tr>
<tr>
<td></td>
<td>C: Abdominal nodes &gt;5cm</td>
</tr>
<tr>
<td></td>
<td>Neck nodes N +</td>
</tr>
<tr>
<td></td>
<td>Mediastinal nodes M +</td>
</tr>
<tr>
<td>IV</td>
<td>Extralymphatic metastases</td>
</tr>
<tr>
<td></td>
<td>Abdominal nodes A, B, C, as above</td>
</tr>
<tr>
<td></td>
<td>Mediastinal or neck nodes as for stage 3</td>
</tr>
<tr>
<td>L1</td>
<td>&lt; 3 lung metastases</td>
</tr>
<tr>
<td>L2</td>
<td>Multiple lung metastases &lt; 2 cm maximum diameter</td>
</tr>
<tr>
<td>L3</td>
<td>Multiple lung metastases &gt; 2 cm in diameter</td>
</tr>
<tr>
<td>H+</td>
<td>Liver involvement</td>
</tr>
<tr>
<td></td>
<td>Other sites identified (Br- brain, Bo- bone, Ad-adrenal)</td>
</tr>
</tbody>
</table>
### Table 2- IGCCC Prognostic Grouping

<table>
<thead>
<tr>
<th>TERATOMA (NSGCT)</th>
<th>SEMINOMA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GOOD PROGNOSIS</strong> with all of:</td>
<td></td>
</tr>
<tr>
<td>Testis/retroperitoneal primary</td>
<td>Any primary site</td>
</tr>
<tr>
<td>No non-pulmonary visceral metastases</td>
<td>No non-pulmonary visceral metastases</td>
</tr>
<tr>
<td>AFP &lt; 1000 ng/ml</td>
<td>Normal AFP</td>
</tr>
<tr>
<td>HCG &lt; 5000 iu/l</td>
<td>Any HCG</td>
</tr>
<tr>
<td>LDH &lt; 1.5 upper limit of normal</td>
<td>Any LDH</td>
</tr>
<tr>
<td>• 56% of teratomas</td>
<td>• 90% of seminomas</td>
</tr>
<tr>
<td>• 5-year survival 92%</td>
<td>• 5-year survival 86%</td>
</tr>
</tbody>
</table>

| **INTERMEDIATE PROGNOSIS** with all of |          |
| Testis/retroperitoneal primary | Any primary site |
| No non-pulmonary visceral metastases | Non-pulmonary visceral metastases |
| AFP > 1000 AND < 10000 ng/ml or | Normal AFP |
| HCG > 5000 AND < 50000 iu/l or | Any HCG |
| LDH > 1.5 normal < 10 normal | Any LDH |
| • 28% of teratomas | • 10% of seminomas |
| • 5-year survival 80% | • 5-year survival 73% |

| **POOR PROGNOSIS** with any of: |          |
| Mediastinal primary or non-pulmonary | No patients classified as poor prognosis |
| Visceral metastases | |
| AFP > 10,000 ng/ml or | |
| HCG > 50,000 iu/l or | |
| LDH > 10 normal | |
| • 16% of teratomas | |
| • 5-year survival 48% | |

### 11.12 Pathology

**General Principles**

It is recommended in the Improving Outcomes in Urological Cancers guidance published in 2002 that all new diagnoses of cancer are reviewed at a multidisciplinary team meeting where pathological features are taken into account in the formulation of the management plan. This will include consideration of the patient’s eligibility for entry into trials.
Although pathologists are referred to the Minimum Datasets published by the Royal College of Pathologist, there are features which are not included in these Datasets but are relevant for inclusion into on-going trials. These have been included in the following short guidelines.

**Guidelines for Reporting Orchidectomy Specimens**
The most important aspect of dealing with testicular tumours is to take sufficient numbers of blocks to ensure that all the different components of the tumours are represented and that the capsule and adjacent testicular parenchyma are sampled for the assessment of vascular invasion.

**Tumour Type**
Reference to the WHO classification allows the identification of different tumour components which can then be grouped into general categories according to the British Classification.

**Tumour Stage**
- Involvement of epididymis and spermatic cord
- Presence or absence of vascular invasion, currently in teratomas the sole criterion for chemotherapy rather than surveillance in clinically localised (Stage I) disease.

Guidelines for reporting retroperitoneal lymph node dissections in patients with germ cell tumours
These are generally performed in patients with testicular germ cell tumours if a retroperitoneal mass fails to resolve following chemotherapy. It is important to identify any potential residual tumour because of the implications for the subsequent management and prognosis.

**Characterisation of the Specimen**
- Presence or absence of recognisable nodal tissue or any other retroperitoneal structures.
- Presence or absence of residual tumour and its type.
- Transformation of differentiated elements into somatic malignancies (carcinomas, sarcomas, leukaemias) should be noted, as it is indicative of poor prognosis.
- Completeness of excision – it is useful to ink these specimens prior to sectioning

**11.13 Radiology**

**Imaging of Germ Cell Tumours**
Clinical information regarding tumour side and any pre-existing risk factors for pelvic disease is essential for interpretation of equivocal findings and appropriate tailoring of the examination protocol. Histological tumour type is usually not available at the time of the initial staging study. Tumour markers, if known, are helpful.

**Diagnostic Staging**
CT remains the mainstay of imaging patients with Testicular and Mediastinal Germ Cell Tumours although trials are underway looking at the use of MRI in surveillance of the abdomen in Testicular Germ Cell Tumour patients who present with early stage disease.
- CT, with oral and intravenous contrast, of the chest, abdomen and pelvis should be performed in all patients. This is usually post orchidectomy, performed centrally and arranged by the nonsurgical oncology team
- Contrast enhanced CT of the brain is indicated for patients who fall into the poor prognosis category i.e.
  - Liver or bone metastases
  - High tumour markers - AFP >10000, HCG >50000, LDH > 10x normal
  - Primary Mediastinal Germ Cell Tumours
Follow up scans
CT of the chest and abdomen alone is sufficient. CT pelvis is not required provided that there has been no pelvic disease on the initial staging study, and there are no risk-factors predictive of pelvic relapse i.e.

- Bulky abdominal disease (>5cm)
- Past history of maldescent
- Orchidopexy or other scrotal surgery
- Tumour invasion through tunica vaginalis
- No intravenous contrast is required for reassessment of Stage I disease
- When there is nodal disease in the retroperitoneum (Stage II disease), intravenous contrast is only required when the examination is performed to assess suitability for retroperitoneal lymph node dissection (RPLND)
- Intravenous contrast enhancement should be routinely be used for reassessment of patients with liver or intracranial metastatic disease

Patients in Clinical Trials
Trial protocols generally specify the areas to be imaged and the imaging modality to be used.

11.14 Treatment Algorithm for Testicular Germ Cell Cancer

![Diagram of treatment algorithm for testicular germ cell cancer](image-url)
The Network agreed chemotherapy regimens are available on the NEYHCA website
(Please press control and click on the link below)
http://www.hyccn.nhs.uk/NetworkGuidelinesAndPublications/ChemotherapyAndPharmacy.htm
These regimens are regularly updated on the NEYHCA website.
12. Penile Cancer

Treatment

All patients with Penile Cancer should be referred to the Supra-Network Specialist MDT, based within the Yorkshire Cancer Network, to advise on Treatment (See Appendix iv)

The Supra-Network Specialist MDT, based within the Yorkshire Cancer Network, should advise on all follow-up for patients with Penile Cancer. (See Appendix iv for pathway)

The following section has been taken from the NEYHCA & YCN Guidelines for the Management of Penile Cancers

For full NEYHCA & YCN guidelines for Penile Cancers v1.3, please press control and click on the link below:

Introduction

This document is based upon the guidelines of the European Association of Urology (EAU), with some modifications relevant to local practice and protocols.

Definition of Penile Cancer

Penile cancer is a rare SCC. It usually originates in the epithelium of the inner prepuce and glans. It shares a similar pathology and natural history with SCC of the oropharynx, female genitalia (cervix, vagina and vulva) and anus. Phimosis, poor hygiene and smoking are the major risk factors for penile cancer. Typing has been done of the human papillomaviruses (HPV) responsible for the sexual transmission of genital warts, condyloma acuminata SCC of the penis.

Epidemiology

In Western countries, primary malignant penile cancer is uncommon, with an incidence of less than 1.00 per 100,000 males in Europe and the United States of America (USA). Important risk factors include social and cultural habits, hygienic and religious practices. Penile carcinoma is rare in communities that practise circumcision in newborns or before puberty (Jews, Muslims and the Ibos of Nigeria). Early circumcision reduces the risk of penile cancer by 3 to 5 times. Adult circumcision does not protect against penile cancer.

Risk Factors and Prevention

Strong risk factors (OR > 10) identified by case-control studies included (level of evidence: 2a):

- Phimosis
- Chronic inflammatory conditions, e.g. balanoposthitis, lichen sclerosus and atrophicus (BXO)
- Treatment with sporalene and ultraviolet A photochemotherapy.

Sexual history (multiple partners, early age of first intercourse) and a self-reported history of condylomata are associated with a 3- to 5-fold increased risk of penile cancer. Smoking is also a risk factor. Cervical cancer in the wife was not consistently associated with penile cancer in the husband. The risk of cancer among patients with condyloma acuminata increases for vulva, vagina, penis and anus (level of evidence: 2b). Human papillomavirus-16 and -18 have a causal role in 70% of cancers of the cervix, vagina and anus and about 30-40% of cancers of the vulva, penis and oropharynx. Other cofactors are very likely to be necessary for progression from HPV infection to cancer.
12.1 TNM Classification and Pathology

**TNM classification**
The 2002 UICC Tumour Node Metastasis (TNM) classification for penile cancer is shown below.

**T** - Primary tumour
- **TX**: Primary tumour cannot be assessed
- **T0**: No evidence of primary tumour
- **Tis**: Carcinoma in situ
- **Ta**: Non-invasive verrucous carcinoma
- **T1**: Tumour invades subepithelial connective tissue
- **T2**: Tumour invades corpus spongiosum or cavernosum
- **T3**: Tumour invades urethra or prostate
- **T4**: Tumour invades other adjacent structures

**N** - Regional lymph nodes
- **NX**: Regional lymph nodes cannot be assessed
- **N0**: No evidence of lymph node metastasis
- **N1**: Metastasis in a single inguinal lymph node
- **N2**: Metastasis in multiple or bilateral superficial lymph nodes
- **N3**: Metastasis in deep inguinal or pelvic lymph nodes, unilateral or bilateral

**M** - Distant metastases
- **MX**: Distant metastases cannot be assessed
- **M0**: No evidence of distant metastases
- **M1**: Distant metastases

This classification is in need of an update, particularly the definition of T2 category, as the prognosis of patients with tumour invasion of the corpus spongiosum is much better than invasion of the corpus cavernosum.

**Pathology**
Squamous cell carcinoma accounts for more than 95% of cases of malignant disease of the penis. Malignant melanomas and basal cell carcinoma are much less common. It is not known how often SCC is preceded by premalignant lesions. Although SCC is the most common penile neoplasia, different types and varying growth patterns have been identified.

**Premalignant lesions**
Lesions sporadically associated with SCC of the penis
- Cutaneous horn of the penis
- Bowenoid papulosis of the penis
- Balanitis xerotica obliterans (lichen sclerosus et atrophicus)

Lesions at high risk of developing SCC of the penis (up to one-third transform to invasive SCC)
- Penile intraepithelial neoplasia (carcinoma in situ): erythroplasia of Queyrat and Bowen’s disease
Types of SCC
- Basaloid
- Verrucous and its varieties:
  - Warty (condylomatous) carcinoma
  - Verrucous carcinoma
- Papillary carcinoma
  - Hybrid verrucous carcinoma
  - Mixed carcinomas (warty basaloid, adenobasaloid carcinoma)
- Sarcomatoid
- Adenosquamous

Growth patterns of SCC
- Superficial spread
- Nodular or vertical-phase growth
- Verrucous

12.2 Diagnosis and Staging

The primary tumour and regional lymph nodes must be staged correctly to enable the most appropriate treatment.

12.21 Primary lesion
Physical examination of a patient with penile cancer includes:
- Diameter of the penile lesion(s) or suspicious areas
- Location of lesion(s) on the penis
- Number of lesions
- Morphology of lesion(s): papillary, nodular, ulcerous or flat
- Relationship of lesion(s) to other structures, e.g. submucosa, tunica albuginea, urethra, corpus spongiosum and corpus cavernosum
- Colour and boundaries of lesion(s)
- Penis length.

Accurate histological diagnosis and staging of both the primary tumour and regional nodes are necessary in making treatment decisions. Artificial erection with prostaglandin E1 (alprostadil) in combination with magnetic resonance imaging (MRI) may be helpful in identifying the depth of tumour invasion of the corpora cavernosa and whether or not conservative surgery should be used.

12.32 Regional lymph nodes
Lymphatic Drainage of the Penis
Primary lymphatic drainage of penile cancer occurs to the inguinal nodes. All sentinel nodes are located in the superior and central inguinal zones with most found in the medial superior zone. The presence of lymph node metastases may be predicted from tumour characteristics other than T and G categories. The most important adverse pathological prognostic factors appear to be perineural invasion, vascular invasion and high histological grade. Nomograms can be used to evaluate the predictive power of clinical and pathological indicators.

Non-palpable Nodes
A careful inguinal physical examination is necessary in all cases.

In the absence of palpable abnormalities, an inguinal ultrasound (7.5 MHz) may reveal abnormal nodes and can be used as a guide for fine-needle aspiration biopsy.
Recent reports suggest that dynamic SNB (using isosulphan blue and/or technetium-99m (99mTc)-colloid sulphur) improved survival compared to a ‘wait-and-see’ policy (level of evidence: 3) and reduced toxicity compared to inguinal lymphadenectomy (LAD). A prospective study has found dynamic SNB has 100% specificity and 95% sensitivity (level of evidence: 2a).

A conventional CT or MRI scan cannot detect micrometastases but may be useful in the evaluation of patients with impalpable nodes. Large studies are required to confirm promising results reported with nanoparticle-enhanced MRI and positron emission tomography (PET) or CT imaging.

**Palpable nodes**

Palpable nodes should be described as follows:
- Node consistency
- Node location(s)
- Diameter of node(s) or mass(es)
- Unilateral or bilateral localisation
- Number of nodes identified in each inguinal area
- Mobile or fixed nodes or masses
- Relationship (e.g. infiltration, perforation, etc) to other structures, such as the skin or Cooper ligament
- Oedema on leg and/or scrotum.

At the time of diagnosis of penile cancer, as many as 50% of palpable inguinal nodes will be reactive rather than due to lymph node metastasis. In contrast, during follow-up, nearly 100% of enlarged nodes are metastatic (level of evidence: 2a). Thus, after allowing time for inflammatory reactions to subside, regional nodes should be evaluated within a few weeks after treatment of the primary tumour.

Histological diagnosis can be achieved using fine-needle aspiration biopsy, tissue core biopsy or open biopsy, according to the preference of the pathologist (level of evidence: 2b). In the case of a negative biopsy and clinically suspicious nodes, a repeat biopsy or excisional biopsy should be performed.

Imaging techniques (CT, MRI) are widely used, but are only useful for staging in patients with proven lymph node metastases. They are valuable in the assessment of pelvic nodes in patients with palpable inguinal nodes. PET-CT is a new technique which may have a role in the assessment of distant metastases in such patients.

**Distant Metastases**

An assessment of distant metastases should be performed in patients with proven positive inguinal nodes (level of evidence: 2b).

Pelvic or abdominal CT scan should be used to identify pelvic (and retroperitoneal) adenopathies in patients with inguinal metastases. While this is not a very reliable diagnostic method, the detection of pelvic masses has a considerable impact on therapy and prognosis. PET-CT is a new technique which may have a role in the assessment of distant metastases in such patients.

Routine blood determination and chest X-rays are usually performed, despite the fact that lung metastasis is exceptionally rare. The value of SCC antigen determination as a staging tool is unclear and therefore not recommended for routine use.

A diagnostic schedule is summarised below. The investigational protocol will be tailored to the individual according following MDT discussion.
<table>
<thead>
<tr>
<th>Lesion level</th>
<th>Procedures</th>
<th>Mandatory</th>
<th>Advisable</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary tumour</td>
<td>Physical exam</td>
<td></td>
<td>Cytology or histology</td>
<td>MRI or ultrasound</td>
</tr>
<tr>
<td>Impalpable nodes</td>
<td>Physical exam</td>
<td>Ultra sound</td>
<td>Dynamic sentinel node biopsy</td>
<td>MRI or CT</td>
</tr>
<tr>
<td>Palpable nodes</td>
<td>Ultrasound cytology or histology</td>
<td>MRI or CT</td>
<td>PET-CT</td>
<td></td>
</tr>
<tr>
<td>Distant metastases</td>
<td>Pelvic CT, if positive inguinal nodes CXR</td>
<td>Abdominal CT</td>
<td>PET-CT</td>
<td>Bone scan if symptomatic</td>
</tr>
</tbody>
</table>

### 12.3 Treatment

The primary tumour and regional lymph nodes are usually treated separately.

It is important to avoid both overtreatment, which may lead to side-effects, and undertreatment, which may impair survival.

#### 12.31 Treatment of the Primary Tumour

**Category Tis and Ta**

Tis and Ta are superficial lesions that can be treated with several conservative techniques:

- Topical 5-fluorouracil for Tis
- Imiquimod 5% cream, an immune response modifier with good cosmetic and functional results on flat lesions
- Laser therapy with carbon dioxide (CO2) or (Nd:YAG) lasers
- Photodynamic therapy
- Mohs’ micrographic surgery for Ta lesions

However, conservative treatment may not be suitable in cases of multifocal lesions, which are responsible for 15% of recurrences. Total treatment of the glans surface combined with concomitant circumcision is strongly recommended to avoid multiple recurrences (grade of recommendation: A).

For patients in whom local therapies have failed, surgical excision and resurfacing procedures are of value.

**Category T1G1**

For lesions limited to the foreskin and sulcus, wide local excision with circumcision may provide adequate treatment. Pathological assessment of the surgical margin is mandatory; a margin of 3-4 mm is sufficient (level of evidence: 2a).

**Category T1 G2-3**

For patients who can guarantee they will attend for regular follow-up, a penis-preserving strategy is strongly recommended using wide local laser excision plus reconstructive surgery or glansectomy (level of evidence: 2a). Treatment choice is influenced by tumour size and position on the glans and the side-effects of treatment. Meticulous follow-up is essential to enable immediate treatment of any local disease recurrence.
**Category T2 (of the glans)**
A conservative strategy of total glansectomy, with or without resurfacing of the corporeal heads, is recommended (level of evidence: 2a). Partial glansectomy is an alternative in very carefully selected patients with tumours that include less than half of the glans and in whom close follow-up is possible (level of evidence: 2b). Consider partial amputation in patients unfit for more conservative reconstructive surgery.

**Category T2 (of the corpora) and T3**
For tumours involving the tips of the corpora, partial amputation is standard treatment (level of evidence: 2a). Reconstructive surgery with negative margins at frozen section analysis is an alternative in carefully selected patients (level of evidence: 2b). For large tumours involving more than the distal corpora, partial or radical amputation is standard (level of evidence: 2a).

Traditionally, partial amputation has required removal of 2-cm tumour-free margins. This is almost certainly more than is necessary. However, it is essential to achieve tumour-free margins with pathological confirmation. A surgical margin of 5-10 mm is safe (level of evidence: 2b).

**Category T4**
Deeply infiltrating tumours involving adjacent structures are often associated with disseminated disease at presentation and a short life expectancy. Palliative care may be most appropriate. Toilet surgery may be appropriate in some cases. In selected cases, downstaging with chemotherapy may be considered prior to total penectomy. Alternatives include surgery with adjuvant external beam irradiation (level of evidence: 3).

**Local Disease Recurrence**
For local recurrence after conservative therapy, a second conservative procedure is strongly advised if there is no corpora cavernosa invasion (level of evidence: 2b). However, if there is a large or deep infiltrating recurrence, partial or total amputation is strongly recommended. The incidence of local recurrence increases with penis preservation, but can be treated in most cases. Local recurrence after penile amputation has a poor prognosis.

**Recommendations for Radiation Therapy**
Radiotherapy should be considered for local disease in two groups of patients with two different aims:
- Organ-preserving treatment: in men with T1-2 glans or coronal sulcus lesions (< 4 cm), who are compliant for close follow-up. Both ERT combined with a BRT boost, or BRT alone, may be used to deliver the prescribed dose (> 60 Gy).
- Palliative radiotherapy: in men with advanced or metastatic disease requiring palliative local treatment, the treatment of choice is ERT (40-50 Gy).

Guidelines for treatment strategies in primary tumour. The specific treatment will be tailored to the individual according following MDT discussion.
<table>
<thead>
<tr>
<th>Primary tumour</th>
<th>LE</th>
<th>GR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category Tis &amp; Ta</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conservative therapy including topical therapy.</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td>Total glans resurfacing is an option for patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>who have failed initial conservative therapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Multifocal lesions &amp; HPV-16 infection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total glans resurfacing and circumcision are strongly recommended to prevent multiple recurrences</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td><strong>Category T1G1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1G1 tumours are suitable for conservative surgery</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td>For glans lesions, CO2 laser surgery or resurfacing are appropriate</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td>For lesions of foreskin and sulcus, wide local excision with circumcision are appropriate with assessment of surgical margins</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td>Deeper infiltration may need adjuvant chemotherapy</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td><strong>Category T1G2-3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penile-preserving treatment with wide local laser excision for</td>
<td>2a</td>
<td>B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary tumour</th>
<th>LE</th>
<th>GR</th>
</tr>
</thead>
<tbody>
<tr>
<td>complying patients with follow-up, or glansectomy are indicated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment of surgical margins reduces rate of local recurrence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In these cases early diagnosis of local recurrence does not have an adverse impact on survival</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Category T2 (of glans)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total glansectomy, with or without resurfacing of corporeal heads</td>
<td>2b</td>
<td>B</td>
</tr>
<tr>
<td>Partial glansectomy is an alternative in very carefully selected patients with tumours less than half the glans and suitable for follow-up</td>
<td>2b</td>
<td>B</td>
</tr>
<tr>
<td>Consider partial amputation in patients unfit for follow-up</td>
<td>2b</td>
<td>B</td>
</tr>
<tr>
<td><strong>Category T2 (of the corpora) and T3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate partial amputation for tumours involving only tips of the corpora</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td>Partial or total amputation for larger tumours involving more than the distal corpora</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td>Traditionally, partial amputation has required removal of 2-cm tumour-free margins. A surgical margin of 5-10 mm is safe with pathological confirmation</td>
<td>2b</td>
<td>B</td>
</tr>
<tr>
<td><strong>Category T4</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deeply infiltrating tumours involving adjacent structures are often associated with disseminated disease at presentation. For patients in poor conditions with short life expectancy, palliative radiotherapy may be most appropriate. Palliative &quot;toilet&quot; surgery may be appropriate</td>
<td>2a</td>
<td>C</td>
</tr>
<tr>
<td>Some patients may be suitable for down-staging with chemotherapy prior to surgery. Alternatives include adjuvant external beam irradiation if surgery is not possible</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td><strong>Local disease recurrence after conservative therapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local recurrence is more likely with penis preservation but it is usually treatable</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td>Second conservative procedure is strongly advised in absence of corpora cavernosa invasion</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td>Partial or total amputation is strongly recommended for large or deep infiltrating recurrence</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td>Local recurrence after penile amputation has a poor prognosis</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td><strong>Main uses of radiotherapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organ-preserving treatment in selected patients with T1-2 glans or coronal sulcus lesions &lt; 4 cm</td>
<td>2a</td>
<td>B</td>
</tr>
<tr>
<td>Palliative in advanced or metastatic disease not responsive to chemotherapy</td>
<td>2b</td>
<td>B</td>
</tr>
</tbody>
</table>
12.32 Treatment of Regional Lymph Nodes

Lymphadenectomy (LAD) is the necessary surgical procedure for patients with inguinal lymph node metastases. Bilateral LAD is often followed by prolonged lymph leakage, leg and scrotal lymphoedema. Other surgical complications include skin flap necrosis, wound infection and haemorrhage from exposed femoral vessels. These complications occur in 30-70% of patients. The procedure requires careful skin flap management, meticulous lymph node dissection, prophylactic antibiotics, compressive stockings and early ambulation.

Management of Patients with Non-palpable Inguinal Nodes

Surveillance

In the past, patients with low-stage tumours and clinically unaffected inguinal nodes have often undergone surveillance strategies. The 2004 EAU guidelines ‘strongly’ recommended surveillance only in patients with superficial and well-differentiated tumours: Tis, TaG1-2, T1G1 and T1G2 with superficial growth and no vascular invasion.

In relation to more advanced disease in one series, nodal metastases were found in 100% of pT3-T4, in 82% of pT2 and 23% of pT1. In particular, 16.5% of metastases were found in pT1G1 and 60% in pT1G2-3. No metastases were found in Ta or Tis. Other studies have given similar results.

In a very recent series, lymph node metastases were found in 12% of pT1G2, a category that has therefore been defined as ‘intermediate risk’.

As consequence of this and similar data, a surveillance strategy is considered satisfactory treatment for Tis, TaG1-2, T1G1 and probably T1G2 tumours. A more aggressive strategy is optimal in patients with T2 or G3 tumours.

Sentinel Node Biopsy (SNB)

Dynamic SNB appears promising. The concept behind dynamic SNB assumes there is a stepwise and orderly progression of the primary node (the so-called sentinel node) to secondary lymph nodes. There may be more than one sentinel node. To identify the sentinel node(s), 99mTc-nanocolloid is injected around the penile tumour intradermally the day before surgery. The sentinel lymph node(s) are detected intra-operatively with a gamma X-ray detection probe and patent blue dye staining before being dissected and removed. If there is a positive histology, either on frozen section or definitive histology, a formal complete inguinal LAD is performed. Current estimates of false negative rates are around 5%. Ultrasound examination of the inguinal nodes is a central component of this technique and has been demonstrated to reduce the numbers of false negative results.

If the technique is available, it is the recommended approach for patients with no palpable lymphadenopathy in the presence of T2 or G3 disease.

In patients with T2 or G3 disease, if dynamic SNB is unavailable, then the EAU guidelines recommend prophylactic bilateral inguinal lymphadenectomy using a modified Catalona technique, which minimises post-operative morbidity.
Management of Patients with Palpable Inguinal Nodes

In patients with penile cancer, moderately enlarged palpable inguinal nodes, which are not fixed, may or may not signify metastatic disease. The rate of false-positive nodes has been reported as high as 50%, but recently much lower figures of 30% have been reported. Ultrasound with fine-needle aspiration biopsy provides an excellent, rapid and easy way to detect metastatic involvement. Of course this is only reliable in tumour-positive patients. In suspected cases with tumour-negative findings, fine-needle aspiration biopsy may be repeated.

In the presence of palpable nodes, even when FNA has been negative, histological diagnosis is usually necessary, proceeding to lymphadenectomy if histology is positive.

Dynamic SNB is not reliable in this group of patients and should not be used. CT scanning is valuable in these patients to assess the pelvic and retroperitoneal nodes, while PET-CT may have a role in the identification of distant metastases.

In all tumour-positive patients, early LAD should be performed; bilateral LAD is the standard procedure. In contralateral non-palpable lymph nodes, surgical staging is recommended either by dynamic SNB or lymph node dissection.

The Role of Pelvic LAD

There is no direct lymphatic drainage from penile cancer to the pelvic lymph nodes. Thus, if there is no involvement of inguinal nodes, pelvic LAD is not warranted.

Management of the pelvic nodes depends to a large extent on the findings at inguinal lymphadenectomy and the radiological appearances of the pelvic nodes. Pathological predictors for the potential involvement of pelvic nodes in patients with involved inguinal nodes are the number of positive inguinal lymph nodes and extracapsular extent of metastatic disease (level of evidence: 2a) as a consequence:

- If the inguinal LN histology is negative, then pelvic lymphadenectomy is not indicated
- If inguinal lymphadenectomy identifies low risk disease (single nodal involvement), then providing that the pelvic nodes are not enlarged, a surveillance approach is justified using CT or MRI
- If inguinal lymphadenectomy identifies high risk disease (more than one node or extracapsular disease) then if the pelvic nodes may be managed by pelvic lymphadenectomy or by adjuvant radiotherapy. In selected cases a surveillance approach may be justified.
- If the pelvic nodes are enlarged, attempts at curative therapy are unlikely to be successful. However, palliation may be obtained by surgical excision, radiotherapy or chemotherapy.

Adjuvant Chemotherapy

Adjuvant chemotherapy after resection of nodal metastases has been reported in a few series. Most of these studies are older and provide mixed results.

Neo-adjuvant chemotherapy with taxanes may have some activity in unresectable or recurrent lymph node metastases (level of evidence: 2a, grade of recommendation: B).

The Role of Radiotherapy

Prophylactic radiotherapy in clinical N0 patients is not recommended for the following reasons:

- Radiotherapy fails to prevent the development of metastatic lymph nodes
- Complications of radiotherapy
- Follow-up is more difficult due to fibrotic changes.

Pre-operative radiotherapy in patients with fixed nodes can make the nodes operable, but it is not known whether node fixation is an inflammatory reaction or malignant growth.
Adjuvant radiotherapy may improve loco-regional control in patients with extensive metastases and/or extranodal spread. However, severe side-effects include oedema and pain.

Guidelines for treatment strategies for nodal metastases. The specific treatment will be tailored to the individual according following MDT discussion.

**Treatment Summary for Nodal Metastases**
The specific treatment will be tailored to the individual according following MDT discussion. Management of regional lymph nodes is fundamental in the treatment of penile cancer.

<table>
<thead>
<tr>
<th>Regional lymph nodes</th>
<th>LE</th>
<th>GR</th>
</tr>
</thead>
<tbody>
<tr>
<td>No palpable inguinal nodes</td>
<td>T1a, T1bG1, T1G1: surveillance</td>
<td>2a</td>
</tr>
<tr>
<td></td>
<td>T1G2: DSNB if available:</td>
<td>2a</td>
</tr>
<tr>
<td></td>
<td>If not available, then a discussion regarding prophylactic inguinal LAD is appropriate.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; T1 G2: DNSB if available:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>If not available, then prophylactic inguinal LAD is appropriate following consideration risk factors / nomogram decision-making</td>
<td></td>
</tr>
<tr>
<td>Palpable inguinal nodes</td>
<td>Ultrasound-guided FNAB (NB: DSNB is unsuitable for palpable nodes)</td>
<td>2a</td>
</tr>
<tr>
<td></td>
<td>Negative biopsy: repeat biopsy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive biopsy: bilateral inguinal LAD</td>
<td></td>
</tr>
<tr>
<td>Pelvic nodes</td>
<td>Pelvic LAD if there are 2 or more nodes involved or extracapsular spread</td>
<td>2a</td>
</tr>
<tr>
<td></td>
<td>Radiotherapy is an option if the pelvic nodes are not radiologically enlarged</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pelvic LAD may be appropriate for enlarged glands on CT or MRI, in the absence of other evidence of metastatic disease</td>
<td></td>
</tr>
<tr>
<td>Adjuvant chemotherapy</td>
<td>In patients with &gt; 1 intranodal metastasis (pN2 pN3) after radical LAD, survival may be improved by adjuvant chemotherapy</td>
<td>2b</td>
</tr>
<tr>
<td>Patients with fixed or relapsed inguinal nodes</td>
<td>Neo-adjuvant chemotherapy in patients with unresectable or recurrent lymph node metastases may have a role. Taxanes seems to improve the efficacy of standard PF chemotherapy</td>
<td>2a</td>
</tr>
<tr>
<td>Radiotherapy</td>
<td>Adjuvant radiotherapy to pelvic and aorto-iliac nodes may be appropriate in patients with high risk inguinal disease (2 or more involved nodes or extracapsular nodal disease providing that the pelvic nodes are not enlarged on imaging</td>
<td>2b</td>
</tr>
</tbody>
</table>
12.33 Treatment of Metastatic Disease

**Individual treatment**
The management of patients with metastatic penile cancer is palliative. The optimal management for an individual should be discussed within the MDT.

**Chemotherapy**
Currently there is no conclusive evidence that chemotherapy has curative effect in the treatment of metastatic penile cancer. There is evidence however of palliation and this should be considered when appropriate. Entry to clinical trials is to be encouraged when they are available.

**The role of radiotherapy**
Palliative RT can be offered to symptomatic metastases that are amenable to be localised irradiation. Acceptable doses which can be used include 8Gy in 1 f for bone mets, and 20Gy in 5 f in most other situations

12.4 Follow-Up

Follow-up in penile carcinoma is important for several reasons:
- It enables early detection of recurrence, which is important because most local and/or loco-regional recurrences are potentially curable
- It is the only way to assess treatment and anticipate early and late complications
- It is also important for patient (and physician) education.

A rational follow-up scheme requires an understanding of the patterns of recurrence. Preferably, follow-up should be introduced within the framework of a randomised study. Based on a retrospective study, a follow-up schedule for penis cancer has been published.

**How to follow-up**
The aim of follow-up is to detect local and/or regional recurrences because they may be cured. In contrast, metastases at distant sites are always fatal. Risk stratification for recurrence is also helpful. Traditional follow-up methods have been inspection and physical evaluation. Modern ultrasound imaging is a useful adjunct, with promising results from new imaging modalities, such as PET scan and laser-directed MRI.

**When to follow-up**
The follow-up interval and strategies for patients with penile cancer are directed by the initial treatment of the primary lesion and regional lymph nodes. In the above-mentioned multicentre study, during the first 2 years of follow-up, the following occurred:
- 74.3% of all recurrences
- 66.4% of local recurrences
- 86.1% of regional recurrences
- 100% of distant recurrences.

Of all recurrences, 92.2% occurred within the first 5 years (1). All recurrences after 5 years were local recurrences or new primaries. Thus, an intensive programme of follow-up during the first 2 years is rational with less intensive follow-up needed thereafter. In well-educated and motivated patients, follow-up can stop after 5 years, although they must continue to carry out regular self-examination.
Primary Tumour
Local recurrence has been reported in up to 30% of patients treated with penile-preserving surgery, during the first 2 years following treatment. Local recurrence is more likely with all types of local therapy, i.e. local resection, laser therapy, BRT, Mohs’ procedure, and associated therapies. However, in contrast to regional recurrences, local recurrences do not impact on survival.

Local recurrences are easily detected by the patient, his partner or doctor. Patient education is an important part of follow-up and the patient should be urged to visit a specialist if any changes are seen.

Despite the fact that late local recurrences are well documented, it is reasonable to stop follow-up after 5 years, provided the patient will report local changes immediately. This is possible because life-threatening regional and distant metastases no longer occur, while recurrences that are local only are not life-threatening. The emphasis should be placed on patient self-examination.

In patients who are unlikely to self-examine, long-term follow-up may be necessary.

Following penile-preserving treatment, a follow-up visit every 3 months is advised in the first 2 years. We then advise a follow-up visit every half-year, provided that the patient and partner have been well instructed to examine the penis regularly and to return if any abnormality is observed. It is important to stress that the patient must continue to carry out regular self-examination even after 5 years’ follow-up.

After amputation, a less frequent time interval of every 6 months is advised. The risk of local recurrence is not more than 5%.

Regional Recurrences
Stringent follow-up is advised for the 2 years following surgery. This is because most regional recurrences occur within 2 years, whether a ‘wait-and-see’ policy has been followed or the patient has undergone SNB or inguinal LAD. Previous follow-up recommendations have relied heavily on physical examination of the inguinal regions. However, experience with ‘wait and see’ and dynamic SNB have shown that, despite intensive follow-up, regional recurrences have shown up unexpectedly. Ultrasound and immediate fine-needle aspiration have been encouraging in finding occult metastases (6, 7) and it seems reasonable to add ultrasound to a physical examination.

Based on these findings, a change in the follow-up scheme is proposed. For patients in a ‘wait-and-see’ programme and patients given LAD for proven lymph node metastases, follow-up should be every 3 months and should include ultrasound investigation of the groin. This intensive follow-up programme should be for 2 years, which is the period when recurrence is most likely. Imaging using CT has been replaced by ultrasound scanning with immediate fine-needle aspiration biopsy, although CT scans are still used in patients with a regional recurrence. So far, other imaging modalities have not proven reliable at detecting pelvic and retroperitoneal recurrences.
Guidelines for Follow-Up in Penile Cancer

<table>
<thead>
<tr>
<th>Interval of follow-up</th>
<th>Examinations and Investigations</th>
<th>Maximum length of follow-up</th>
<th>GR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years 1 and 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years 3, 4 and 5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Recommendations for follow-up of primary tumour

- **Penile-preserving treatment**
  - 3 months
  - 6 months
  - Regular physician or self-examination
  - 5 years
  - C

- **Amputation**
  - 6 months
  - 1 year
  - Regular physician or self-examination
  - 5 years
  - C

Recommendations for follow-up of the inguinal lymph nodes

- **‘Wait-and-see’**
  - 3 months
  - 6 months
  - Regular physician or self-examination
  - Ultrasound with FNAB or CT
  - 5 years
  - C

- **pN0**
  - 6 months
  - 1 year
  - Regular physician or self-examination
  - Ultrasound with FNAB or CT
  - 5 years
  - C

- **pN+**
  - 3 months
  - 6 months
  - Regular physician or self-examination
  - Ultrasound with FNAB or CT
  - 5 years
  - C

Locality

- It is essential that all cases within the supra-regional network are reviewed and discussed within the supra-regional MDT.
- Diagnostic biopsy is most appropriately undertaken in the locality hospital (referring unit).
- While most imaging will be undertaken in the supra-regional centre, on occasions, it is appropriate for such imaging to be undertaken in the locality hospital (referring unit).
- It is appropriate that the majority of primary surgical treatments for patients with penile cancer are carried out in the supra-regional centre, particularly those where reconstruction may be appropriate.
- On occasions (most notably in patients who are infirmed or who find travel difficult) then surgical treatment (toilet surgery) may be carried out in the locality hospital (referring unit). Discussion with the supra-regional MDT is necessary in these cases.
- Lymphadenectomy is most appropriately carried out in the supra-regional centre.
- Adjuvant therapies including radiotherapy and chemotherapy will usually be undertaken in the supra-regional centre. However, on occasions treatment may be carried out where most geographically suitable, providing that the cases are discussed within the supra-regional MDT and providing that the locality radiation or medical oncologist is happy to provide treatment.
- For the patients receiving palliative therapy, it is also strongly recommended that their local palliative care services should become involved in their care at an early stage as possible.
- Follow-up is most appropriately undertaken in the supra-regional centre until the disease is stabilised (typically 2 years after diagnosis), when care may be transferred back to the referring unit.
12.5 Pathology

**General Principles**

It is recommended in the Improving Outcomes in Urological Cancers guidance published in 2002 that all new diagnoses of cancer are reviewed at a multidisciplinary team meeting where pathological features are taken into account in the formulation of the management plan. This will include consideration of the patient’s eligibility for entry into trials. Although pathologists are referred to the Minimum Datasets published by the Royal College of Pathologist, there are features which are not included in these Datasets but are relevant for inclusion into on-going trials. These have been included in the following short guidelines.

**Guidelines for Reporting Carcinomas of the Penis**

These are generally squamous cell carcinomas. Urothelial carcinomas of the penile urethra are uncommon and generally only seen in association with bladder cancer.

**Specimen Types**

- Penile biopsies – these are generally examined at 3 levels.
- Circumcision specimens – if carcinoma is expected, it can be useful to ink the margins prior to sectioning.
- Penectomy specimens – the distance of the tumour to the resection margin, which should be inked, should be noted as well as the pattern and location of the tumour.

**Characterisation of the Tumour**

Histological type – generally squamous cell carcinomas.
Pattern of growth, whether multifocal or not.
Stage using the TNM classification system.
Grade
Presence or absence of in situ carcinoma in the adjacent skin as it can be an indicator of risk of recurrence.
Completeness of resection.
13. Teenagers & Young Adults

Who does this apply to?
- All patients aged 16-24 with cancer
- (2 age groups 16-18 years and 19-24 years)

What needs to happen?
- All patients aged 16-18 years inclusive should be referred to a Principal Treatment Centre (Young People) for treatment
- All patients aged 19-24 years inclusive should be offered referral to a Principal Treatment Centre (Young People) for treatment.
- All patients aged 16-24 years inclusive should be discussed at both a site-specific MDT meeting and a TYA MDT meeting.
- Referral of patients to a PTC (Young People), or review by both a site-specific and a TYA MDT should not be allowed to delay the start of urgent cancer treatment.
- For each patient, a lead medical clinician should to be identified, who will have overall responsibility for their treatment.

Ref: Children & Young People’s Improving Outcomes Guidance - Implementation - August 2008

Why?
- The 2005 NICE IOG on Children and Young People mandates this model of decision-making and care (key principles)
- These young people have particular needs in terms of communication, supportive care and environment of care, that are best served by referral
- The particular spectrum of diseases between MDTs
- This is what young people want to happen, when asked

When does referral need to happen?
- As soon as you are aware of (or have a high suspicion of) a diagnosis of cancer & in time for the TYA team to be involved in decisions about pattern and place of care i.e. before the management plan is negotiated with the patient.

How is this referral made?
- Referral to be made using process agreed in the Standard Operating Procedure (Set up in conjunction with the Yorkshire Cancer Network)

13.1 Standard Operating Procedure

To view a copy of the Standard Operating Procedure please check the NEYHCA (Cancer) website. Please press control and click on the following link

http://www.hyccn.nhs.uk/NetworkGuidelinesAndPublications/CYA.htm
13.3 Pathway for Teenagers & Young Adults with Cancer V1.0 (YCN & NEYHCA (Cancer) / HYCCN)

<table>
<thead>
<tr>
<th>Maximum timeline in days</th>
<th>YCN &amp; HYCCN Teenage and Young Adult with Cancer Pathway 16-24 Version 1.1 (November 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Urgent referral (GP/Screening)</td>
</tr>
<tr>
<td></td>
<td>First seen Diagnostic investigations</td>
</tr>
<tr>
<td>14</td>
<td>Cancer diagnosis Or when highly suspicious Patient may be informed of diagnosis TYA Service involvement</td>
</tr>
<tr>
<td>21</td>
<td>Review at local site specific MDT Refer to TYA MDT Refer to Specialist Site Specific MDT if required TYA Service involvement</td>
</tr>
<tr>
<td>28</td>
<td>Communication and administrative processes TYA MDT referral request to be completed by local MDT and sent to the central point Communication between Medical and Nursing Transfer of images and pathology to TYA MDT according to SOP</td>
</tr>
<tr>
<td></td>
<td>TYA MDT review Liaison between MDT Diagnosis confirmed and patient informed of process from here</td>
</tr>
<tr>
<td></td>
<td>Specialist Site Specific MDT review (for UGI/Gynaec/Oncology/Head &amp; Neck, Sarcoma)</td>
</tr>
<tr>
<td>35</td>
<td>Process following the TYA MDT/Specialist Site Specific MDT Review Referring clinicians informed of outcome of review Liaison between the TYA MDT and the Specialist Site Specific MDT Further investigations arranged, if required</td>
</tr>
<tr>
<td></td>
<td>Patient choice / Joint consultation / Place of care Patient and care TYA Team representative, Unit Clinician TYA Service involvement Decision to Treat, Lead Clinician identified</td>
</tr>
<tr>
<td></td>
<td>Patient decides PTC Care – treatment and ongoing care PTC definitive treatment – then shared care Local treatment with TYA outreach support Local treatment with no TYA outreach support</td>
</tr>
<tr>
<td>62</td>
<td>First definitive treatment MDT Follow up / further assessment Subsequent treatments Within 31 days of first treatment Follow up Living with cancer End of life care</td>
</tr>
</tbody>
</table>

Review date: November 2012
14. Palliative Care Guidelines

Patients who will need a palliative care pathway are identified through the weekly Multidisciplinary Team (MDT). The reasons for curative treatment options not being appropriate are discussed and a management strategy is proposed.

Following discussions with patients and their families a plan of treatments and care will be organized. This may include singularly or in combination: surgery, radiotherapy or chemotherapy and symptom management, with referrals to specialist services, including allied health professional services as appropriate. Referrals to community services would also be instigated as appropriate.

Patients will continue to be reviewed by the clinical team as required. Referral to specialist palliative care can be facilitated through any team member, but is often undertaken by the CNS as they have developed links with the community palliative care nurses throughout the region and the hospices in Hull, Grimsby, Scunthorpe and Scarborough.

Specialist Palliative Care Teams can provide access to a range of services including:

- Day care
- Admission for symptom relief
- Terminal care
- Rehabilitation
- Bereavement counselling
- Pain clinics / Pain Management
- Complementary therapies (e.g. reflexology, aromatherapy)
- Lymphoedema Management services
- Psychological support
- Help with benefits and social care issues.

(Plus, all patients have access to Specialist Palliative Care Advice via telephone support)

The Specialist Palliative Care Team are available to all health care professionals for telephone advice or will visit patients at home or in a hospice to offer clinical advice and guidance where needed. Patients are given contact numbers to gain direct access to the team.

14.1 Key Workers

The patient should be allocated a key worker, given their key workers contact details and the parameters of the key workers role. This should be clearly documented and communicated to the patient, carers and relevant professionals. The patient should be made aware if their key worker changes (which may well happen as the disease process develops).

The key worker can be either a specialist or generalist (e.g. GP or District Nurse) with whom the patient has regular contact and who has received the relevant training and been assessed as competent.
Patients can also be admitted to their local hospitals or hospices for palliative and terminal care if appropriate. The members of the multidisciplinary Specialist Palliative Care Team are available to visit and advise on specific clinical difficulties.

(Please press control & click on the links below)
www.dovehouse.org.uk
www.lindseylodgehospice.org.uk
www.standrewshospice.com
www.stcatherineshospice-nyorks.org
www.macmillan.org.uk
www.directgov.uk / www.macmillan.org.uk (for information regarding benefits / social care advice)

Further information and details of Specialist Support Groups can be found on the NEYHCA website and in the Local Service Directory

www.hyccn.nhs.uk
14.2 Summary of Specialist Palliative Care Services Available Throughout the Region

Hull
- Marie Curie Nurses.
- Out of Hours nursing (East and West Hull)
- AHP services
- Palliative Care Consultant / out patient clinic
- Lead Palliative Care Nurse
- Dove House Hospice (In Patients / Day Care / Lymphoedema)
- Community Palliative Care Macmillan / Clinical Nurse Specialists (CNS) - All PCTs
- Hospital-based Palliative CNS Specialists
- GP Macmillan Facilitators
- Macmillan Day Care
- Chaplain / spiritual worker

Grimsby
- St Andrew's Hospice (In Patients / Day Care / Lymphoedema / out of hours for North East Lincs)
- Community Palliative Care Macmillan / CNS (All PCTs)
- AHP services
- Palliative Care Consultant
- Hospital-based Palliative Care Macmillan / CNS
- Marie Curie Nurses – home nursing
- Lead GP x 2 / Nurse in Palliative Care
- GP Macmillan Facilitator
- Out of Hours Sitting Service
- Chaplain / spiritual worker

Scunthorpe
- Lindsey Lodge Hospice. (In Patients / Day Care / Lymphoedema / Breathlessness Clinic)
- AHP services
- Community Palliative Care Lead GP / CNS (All PCTs)
- Hospital based Palliative Care Macmillan / CNS
- Specialist Palliative Care Social Worker
- Dedicated Occupational Therapy Service
- Dedicated Dietician
- Dedicated Pharmacist
- Marie Curie Nursing – North Lincs
- Chaplain / spiritual worker

Scarborough
- St Catherine’s Hospice (In Patients / Day Care / Lymphoedema)
- AHP services
- Palliative Care Consultant / out patient clinic
- Community Palliative Care Macmillan / CNS (All PCTs)
- Hospital-based Palliative Care Macmillan / CNS (Scarborough District General Hospital)
- GP Macmillan Facilitator
- Marie Curie Nursing
- Bereavement Support Services
- Chaplain / spiritual worker

Bridlington
- Macmillan Unit with ‘GP’ beds
- Neighbourhood Care Team (AHP services)
- Palliative Care Clinic
- Community Palliative Care CNS (All PCTs)
- Chaplain / spiritual worker

(Plus all sites have Specialist Palliative Care Multidisciplinary Teams and all patients have access to phone support & advice)
# 15. Supportive Care Pathway

## NEYHCA (Cancer) High Level Supportive Care Pathway

The pathway has four key components identified that would significantly improve the patient's experience.

- **a** = Holistic Assessment
- **®** = Key Discussion Point
- **●** = Single Contact with the assigned Key Worker
- **i** = Patient/carer information

### Identified Key Components

- Information available and offered
- Key discussion point: Fast Track sytemising what happens next
- Information offered: Key contact identified to navigate investigations
- Key worker identified: This may be the CNS
- Key worker same - contact / meet patient after MDT Re-visit Holistic Assessment
- Consider change in key worker depending on treatment modality – mode of & contact numbers given
- Consider Keyworker change - may be to primary care meet /w contact numbers given

### Stage on Pathway

- **Pre-referral and Screening Programmes**
- **a 1 3** - Diagnostics and staging
- **a 2 5** - Treatment planning options
- **a 2 6** - Treatment
- **a 3 5** - Living with Cancer

### Dependant On

- Accessible Health Promotion Information, Support and Advice from the Practice Nurse, (and Target if required), GP if following NICE guidelines for timely referral
- Direct Access resources so tests can be carried out before referral (not 2wks) Requesting the appropriate test to inform diagnosis and practice staff having ability to offer support
- Coordination of tests to reduce wait and adhere to agreed time scales
- Timely patient hand-over of care with all relevant information, Communication with GP / Community Staff to enable timely & effective primary Care support
- Rapid access into secondary care for investigation of possible recurrence
- Further symptoms management – Primary care to be aware when to re-referral

### Notes

At any stage of the pathway the patient referral for specialist palliative care input should be considered based on assessed need. If and when patients are assessed to have 6 – 12 months to live they will move onto End of Life pathway.

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*adapted from YCN supportive care pathway*
15.1 Rehabilitation

Cancer rehabilitation aims to maximise the patients’ ability to function, to promote their independence and to help the patient adapt to their condition. By optimising their quality of life and developing self-management skills, our patients can take an active role in adjusting to life with and after cancer.

Although rehabilitative interventions are often considered primarily in terms of their physical and functional impact on patients, they can also have major psychological, social, economic and spiritual benefits.

The benefits of good rehabilitation services delivered in a timely manner at appropriate points on the patient pathway can be the prevention, or reduction of problems that often lead to increased length of hospital stay or readmissions due to crisis at home. Maintaining or increasing the patient’s independence and ability to self manage reduces the need for alternative and possibly costly health and social service input.

For the purpose of this document rehabilitation refers to the interventions provided by the four Allied Health Professions (AHP):

Occupational therapy, Physiotherapy, Speech & Language therapy, Dietetics and lymphoedema:

AHP services available locally:
- Brain & CNS
- Colorectal
- Gynaecology
- Head & Neck
- Lung
- Breathless clinic already included
- MSCC
- Sarcoma
- Upper GI / pancreatic & oesophageal
16. Patient Information

General Guidance

“...A higher priority should be placed on improving information for patients, face-to-face communication with health professionals and co-ordination and continuity of care. We also need to do more to support patients through their survivorship.”

Cancer Reform Strategy 2007

Patients should be offered a permanent record or summary of all consultations at which their treatment options are discussed, this should include clear verbal and written information about the following:

- The disease (on diagnosis)
- The nature and implications of diagnosis (where appropriate).
- The treatment options, and their effects (positive and adverse)
- Assessment of the outcome, and information on symptoms which may signify recurrence
- Relevant follow up (discharge) arrangements
- Information on patient involvement groups and support groups, including AHP support.
- If necessary, the patient should be offered a tape of their consultation

MDTs should be involved in patient exercises, in conjunction with Peer Review measures, to ascertain if patients have been offered:

- A key worker
- Information for patients and carers (written or otherwise)
- The opportunity of a permanent record or summary of consultation at which their treatment options were discussed

These exercises should be presented and discussed at MDT meetings, the teams should implement actions resulting from their findings.

Patient Information from National Information Pathways and local information meeting

National Standards should be made available to all patients. Information should be available in languages and formats understandable by relevant local minority groups including; ethnic groups, those with alternative sexuality, and people with disabilities.

Information available should be appropriate to the patients’ needs at that point in their patient journey, (e.g. type of lesion, type of treatment, local services and any choice within them) and should be offered at all stages of the patient pathway. It should cover both physical and psychosocial issues. The information offered and given should be recorded in the patient notes

Patient Information should include names and contact details of key personnel involved in the patients care. Upon diagnosis, every patient should be given the contact details of a key worker in line with local Key Worker Policy. A chemotherapy or oncology nurse should be available to advise, inform and support patients needing chemotherapy or radiotherapy.

Patients should have access to a team of professionals who have been trained in advanced communication skills. Emotional support should be available to the patient at any stage in their pathway of care. Patients should be encouraged to bring someone with them to provide support at diagnostic clinics / appointments at which distressing news may be communicated. Patients should be given time and support to reflect on their treatment options before having to make a decision.
The service should have defined access to social workers, Allied Health professionals, chaplains, pain control and palliative care professionals, whether provided by hospital staff, the Hospices or within the Trust by the Special Palliative Care Team. Services should also aim to develop access to a range of psychological support facilities. Appropriate complimentary therapies & holistic assessment should also be developed.

Carers have a key role in supporting patients and may need information to enable them to fulfill this role optimally. However, patient-specific information should only be provided to carers within the context of protecting patient confidentiality and with the patient’s consent.

<table>
<thead>
<tr>
<th>Name</th>
<th>CNSs Contact Details</th>
<th>Telephone Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms Sue Spence</td>
<td>Castle Hill Hospital, Castle Road, Cottingham</td>
<td>01482 622173 Bleep Switchboard</td>
</tr>
<tr>
<td>(1 position vacant)</td>
<td>East Yorkshire, HU16 5JQ</td>
<td>01482 875875</td>
</tr>
<tr>
<td>Ms Carol Popplestone</td>
<td>Scarborough Hospital, Woodlands Drive,</td>
<td>Bleep Switchboard</td>
</tr>
<tr>
<td></td>
<td>Scarborough, North Yorkshire, YO12 6QL</td>
<td>01723 368111</td>
</tr>
<tr>
<td>Ms Sally Larn</td>
<td>Diana Princess of Wales Hospital, Scartho Rd</td>
<td>01472 874111 Extn 7422</td>
</tr>
<tr>
<td></td>
<td>Grimsby, N E Lincs, DN33 2BA</td>
<td></td>
</tr>
<tr>
<td>Ms Anne Eckersley</td>
<td>Scunthorpe General Hospital, Cliff Gardens</td>
<td>01724 282282 Extn 2823</td>
</tr>
<tr>
<td>Ms Gillian Clark</td>
<td>Scunthorpe, North Lincs, DN15 7BH</td>
<td></td>
</tr>
</tbody>
</table>

Patient Involvement Groups / Self Help Group information can be found on the NEYHCA website and in the Local Service Directory.

Patient Information Pathway – details can be found on the NEYHCA website (Includes Social Care & Benefit Advice in the Local Service Directory).

Support Groups – details can be found on the NEYHCA website / Local Service Directory.

All patients with cancerous or precancerous lesions should be given advice on prevention and recognition of signs and symptoms of suspicious skin lesions and on how to re access the service.
17. References

Manual for Cancer Services


## Appendices

### Appendix i NEYHCA MDT meetings for Urological Cancers / Referral PCTs / Catchment Populations / Table of Key Contacts – August 2011

<table>
<thead>
<tr>
<th>Trust</th>
<th>Location</th>
<th>Day (weekly)</th>
<th>Time</th>
<th>Urgent Referral Fax Number</th>
<th>Lead Clinician</th>
<th>CNs</th>
<th>Arrangements for Specialist Care</th>
<th>Supranetwork Arrangement</th>
<th>Referring PCT / Approx Total Population</th>
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<tbody>
<tr>
<td>Hull and East Yorkshire Hospitals NHS Trust (USMDT)</td>
<td>Castle Hill Hospital</td>
<td>Thursday</td>
<td>12.30</td>
<td>CHH / HRI: 01482 675505</td>
<td>Mr Matt Simms Sec Wendy Brooksby Tel: 01482 622188 Fax: 01482 622106</td>
<td>Ms Sue Spence Tel: 01482 622173</td>
<td>Position vacant</td>
<td>Bleep Switchboard 01482 875875</td>
<td>Hull Teaching PCT 262,400 East Riding of Yorkshire 337,000 Total: 599,400</td>
</tr>
<tr>
<td>North Lincolnshire and Goole Foundation NHS Trust (LMSMDT)</td>
<td>Via video conferencing between Diana, Princess of Wales Hospital Grimsby and Scunthorpe General Hospital</td>
<td>Friday</td>
<td>8.15-10.00</td>
<td>DPOW: 01472 302450 SGH: 01472 387704</td>
<td>Mr Laurence Coombs Sec Linda Lyon (Grimsby) Tel: 01472 302494 Fax: 01472 302371 Jayne Connelly (Scunthorpe) Tel: 01724 282282 Ext 5311 Ms Anne Eckersley (SGH) Tel: 01472 282282 Ext 2723 Ms Gillian Clark SGH 01724 282282 Ext 2839 Ms Sally Larn DPOW 01472 874111 Ext 7422</td>
<td>Ms Holly Bertalan Tel: 01482 626756</td>
<td>Ms Leanne Goldspink Tel: 01482 626796 Miss Lizzie Weldon Tel: 01482 622185</td>
<td>Pathway for penile cancer, see pg 78 of the network guidelines. Pathway for testicular cancers, see pg 75 of the network guidelines. Hull Teaching PCT 250,400 East Riding of Yorkshire 337,000 Total: 597,400</td>
<td></td>
</tr>
<tr>
<td>Scarborough and North East Yorkshire NHS Trust (LMDT)</td>
<td>Scarborough General Hospital</td>
<td>Thursday</td>
<td>16.00-17.30</td>
<td>SGH / Bridlington: 01724 342423</td>
<td>Mr Simon Hawkyard Sec Pam Galloway Tel: 01723 342085 Fax: 01723 342475</td>
<td>Ms Carol Popplestone Bleep Switchboard 01723 368111</td>
<td>HEYHT: Local MDT to refer to specialist team at Castle Hill Hospital Pathway for penile cancer, see pg 78 of the network guidelines. Pathway for testicular cancers, see pg 75 of the network guidelines. North Yorkshire &amp; York (old Scarborough, Whitby &amp; Ryedale) 162,100</td>
<td>North Yorkshire &amp; York (old Scarborough, Whitby &amp; Ryedale) 162,100</td>
<td>North Lincolnshire: 157,200 North East Lincolnshire: 158,500 Total: 315,700</td>
</tr>
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</table>

Appendix ii Imaging Guidelines

These Imaging guidelines are available as a separate document. Please check the NEYHCA Website to ensure you are using the most up to date version.

(Please press control and click on the link below)
www.hyccn.nhs.uk/NetworkGuidelinesAndPublications/NetworkImagingGroup.htm

Introduction

‘A Guideline is not a rigid constraint upon clinical practice, but a concept of good practice against which the requirements of the individual patient can be considered’. (RCR, 1990)

It therefore remains the responsibility of the practising Clinicians to interpret the application of guidelines, taking into account local service constraints and the needs and wishes of the patients.

This Guidance is based on the recommendations contained in:


It is not intended to be prescriptive nor exhaustive, but a guide towards best practice. Imaging protocols may vary depending on local circumstances, and the quality of the imaging service should be supported by regular audit and by attendance at multidisciplinary meetings.

CT and MRI scans should be performed to the standards within the document - The Royal College of Radiologists – Recommendations for Cross-Sectional Imaging in Cancer Management.

Services should be planned to minimise travelling times whilst maintaining the highest standards of specialist care using local expertise and agreed protocols (Calman Hine report, paragraph 4.1.4) Patients should be scanned locally where there is suitable equipment and expertise.

All clinical trials should be approved at the Urological CEG and if a patient is within a clinical trial which requires a change to the routine performance of the investigation or the scan to be reported against specific criteria it is the responsibility of the clinician leading the trial to discuss and agree the scanning protocols (including frequency, techniques, coverage and reporting) with the appropriate department prior to the trial commencing

A. Renal Tumours

Suspected renal tumours should be characterised / staged by CT of the kidneys in non contrast, arterial and nephrographic phase imaging. The remainder of the upper abdomen and chest should then be scanned. The pelvis only needs to be included if there are symptoms referable to this, e.g., bone pain.

If the patient has an obvious renal tumour on ultrasound, non contrast and arterial phase scanning are not necessary.

CT arterial phase with 3-D reconstruction can be useful to evaluate of the relationship of the tumour to the collecting system of the kidney and the kidney’s arterial and venous supply if a partial nephrectomy is being considered e.g. tumours less than 4 cm
MRI is reserved for patients with locally advanced malignancy, possible venous involvement, renal insufficiency or contrast allergy. MRI is also an option for the evaluation of inferior vena cava tumour thrombus.

A bone scan should be considered if there is clinical suspicion of metastatic disease.

$^{18}$FDG PET-CT is not used for primary renal tumour assessment as $^{18}$FDG is excreted in the urine and therefore uptake by tumour may be masked. Furthermore, primary renal cell carcinoma displays wide-ranging uptake of $^{18}$FDG from negative through to intense. $^{18}$FDG PET-CT can be useful for the demonstration of metastatic disease, particularly for the demonstration of lytic metastatic bone disease and for assessing response of bone metastases to treatment.

**Follow Up**

CT is the primary imaging modality for follow-up after nephrectomy or when there is evidence of metastatic disease. In patients receiving systemic treatment for metastatic disease, the timing and frequency is determined by chemotherapy schedules and planned surgery. As 30% of recurrent disease occurs in the chest, follow-up should always include imaging of the chest.

For non metastatic disease the frequency of follow up depends on stage and histology at presentation. Data now suggests that no follow-up is needed for T1 N0 M0 tumours.

**B. Bladder Cancer and Other Urothelial Tumours**

Once a diagnosis of invasive bladder cancer has been established, the imaging modality for formal staging depends on treatment intent.

**Muscle Invasive Bladder Cancer**

Patients with muscle invasive bladder tumours are currently staged with contrast CT, CT of the chest, abdomen and pelvis (with full bladder).

If the patient is being considered for radical treatment, and there are specific concerns about local staging, MRI of the pelvis could be performed. The patient would require completion CT chest also.

$^{18}$FDG PET-CT is not useful in the assessment of bladder cancer and other urothelial tumours as the radiotracer is excreted within urine physiologically.

**Follow-up**

- Initial assessment post radical radiotherapy should include ultrasound of the renal tract, chest X-ray and CT of the pelvis.
- After radical radiotherapy patients will be followed up by regular cystoscopies. If there is evidence of recurrent disease then a full staging CT chest, abdomen and pelvis should be repeated.
- Initial assessment post cystectomy should include ultrasound of the renal tract (to be repeated if renal function deteriorates), and chest X-ray.
- For high risk nodal / pT3 disease consider CT follow up.
- IVU to assess upper tracts should be considered.

**Superficial Bladder Tumour**

The need for IVU once a superficial bladder tumour has been detected is questionable. Renal tract USS and/or IVU should be considered for high grade tumours (grade 3)
Upper urinary tract tumours

Upper tract transitional cell cancers are suspected to be present following investigation of haematuria. Ureteroscopy and biopsy are usually undertaken to confirm the diagnosis and CT-triple-phase (pre-contrast, post-contrast including liver and delayed) to include the entire urothelial system, is then performed for staging the tumour.

If ureteroscopy has been unsuccessful, CT is appropriate for further assessment.

Follow Up
CT is the primary imaging modality for follow-up after nephroureterectomy or where there is evidence of metastatic disease. In patients receiving systemic treatment for metastatic disease, the timing and frequency of reassessment is usually determined by chemotherapy schedules. For early stage disease treated with primary surgery, there is no clear evidence base for timing and frequency of follow-up, which is often dictated by patient symptoms.

C. Prostate Cancer

Diagnosis
Transrectal ultrasound guided biopsy is indicated in men with an abnormal digital examination or a raised PSA, after assessment and counselling by a Urology department.

Staging
MRI scanning of the prostate is needed in men with histologically confirmed cancer who are being considered for radical treatment. MRI should include high resolution Axial and coronal T2 imaging of the prostate at slice thickness of 3mm or less.

To avoid under- and overestimation of tumour location and extent, MR imaging should be delayed for 6 weeks after prostate biopsy to minimize the affect of haemorrhage. This is particularly important if spectroscopic or diffusion weighted imaging is performed.

Bone scans are not routinely required in men with histologically confirmed prostate cancer when the presenting PSA is less than 10 and the Gleason score 7 or less.

$^{18}$FDG PET-CT does not currently have a role in the staging of primary prostate cancer.

Follow Up

- Patients with non metastatic disease
  
  Patients treated by radical prostatectomy or radical radiotherapy require no routine planned radiological follow up. Biochemical failure (serial rising serum PSA levels) may require imaging to determine whether the disease is confined to the pelvis (local) or systemic. MRI is more helpful than CT for assessing the prostate bed following radical prostatectomy.

- Patients presenting with metastatic disease
  
  These patients require follow up bone scans if they develop new sites of bone pain and if further treatment options are to be considered.

- Patients on “watchful waiting”
  
  These will require follow up bone scans if they develop new sites of bone pain and if further treatment options are to be considered.
D. Testicular
Following orchidectomy and an established diagnosis of testicular germ cell tumour, all patients should be staged with CT. The primary tumour is not assessed

- Non-seminomatous germ cell tumour: CT chest, abdomen and pelvis.
- Seminoma: CT chest, abdomen and pelvis.
- If a patient presents with more than 20 pulmonary metastases or an HCG level greater than 10,000, brain deposits are sufficiently likely that MRI brain is indicated.
- The trophoblastic subtype of NSGCT is associated with a high incidence of brain deposits.

Follow Up
- NSGCT: 3 monthly CT chest, abdomen and pelvis for 1 year - 6 monthly for 2nd year - Final CT at end of 3rd year.
- Seminoma: chest X-ray annually
- Rising tumour markers will usually require further imaging:
  - CT chest, abdomen and pelvis and ultrasound of the remaining testicle.

If no new disease is seen, an MRI of brain for occult disease and 18FDG PET-CT should be considered.

E. Penile
Staging
- MRI or Contrast CT abdomen and pelvis to include inguinal regions, if there are palpable lymph nodes or histologically proven nodal metastatic disease.

Follow Up
- As directed by supra network in Leeds.
- Physical examination, CT scan, chest radiography and the appropriate intervals between them should be defined by each institution.
- Bone scan and other tests are only recommended in symptomatic patients.
Supranetwork Testicular Cancer ‘Timed’ Pathway Guidelines

The Supranetwork Testicular Cancer pathway incorporates the YCN Supportive and Palliative Care Pathways. Key discussion points, key information, key worker contacts and holistic assessments are identified by symbols along the Testicular pathway. The Testicular pathway is supported by a tumour specific Patient Information Pathway. The Patient Information Pathway supports the steps in the testicular pathway such as referral, diagnostic procedures and tests, diagnosis, treatments and side effects and support services. Each stage is numbered from 1 to 8 indicating when the information might be offered. Additional national resources to meet assessed or expressed patient/carer information needs may be offered at any stage along the pathway.

Appendix 1: Criteria for referral to centre prior to surgery
The indication for discussing this between the managing Urologist and Dr Dan Stark (or deputy) in Leeds should be:

- Metastatic disease visible on chest X-ray
- Abdominal mass clinically evaluable or palpable
- Clinically significant cervical or axillary lymphadenopathy
- Weight loss >10% in the presence of a clinical testicular mass

A consideration in these patients may well be performing ultrasound abdomen as well as ultrasound testis in the local hospital prior to telephone discussion with Leeds Medical Oncology with the result. Then planning for surgery, chemotherapy and definitive staging can take place simultaneously in Leeds.
Appendix 2: Criteria for discussion and offer of patient referral for fertility and assisted conception advice prior to orchidectomy to include

- Bi-lateral tumours
- Known pre-existing oligo or azoospermia
- A high risk of testicular intertubular neoplasia (manifest by testicular atrophy, volume <12mL in a patient less than 40 years, gross calcification on ultrasound).

If the patient is unwell early telephone or fax referral to Dr Dan Stark in Leeds allows us to coordinate staging, fertility advice, chemotherapy and orchidectomy within a single team in Leeds, and is better than splitting the process between a regional centre and Leeds.

Appendix 3: Referral to Centre Process

Referral to be made to Medical Oncology at Leeds by faxed pro-forma (see page 4), or letter with all the information from the pro-forma if that is preferred. The responsibilities for this falls to the operating surgeon performing orchidectomy. It should be completed so that it is received in Leeds within 24 working hours of orchidectomy. For NEYHCA the centre refers to the Hull Oncology Centre, care of Dr Butt. For YCN the centre refers to Leeds, care of Dr Stark. For NEYHCA Dr Butt to fax on to Dr Stark by the next working day at the latest to arrange MDT review.

Appendix 4: Histology report

Upon receipt of a referral in the Leeds Germ Cell team; using the fax pro-forma (see Appendix 5) a standard histology request letter will be sent by that team to the local Pathology department. By copying this letter to Dr Pat Harnden’s secretary in Urological Pathology at St James’ with the full patient details we can provide earlier notice to Pathology that central review is going to be required, making it more likely that the standard is met of local pathology report and slides being available within 16 days of surgery for definitive decision making in the Regional Germ Cell MDT in Leeds.

As soon as the patient is diagnosed with testicular cancer and if age appropriate (16 – 24 years) refer patient to the Teenage and Young Adult Unit (TYAS) at Leeds and follow the YCN Teenage and Young Adult with Cancer pathway.
### Appendix 5: Fax referral Pro-Forma

Send to Medical Oncology at Leeds (Fax number: 0113 2067871) FAO Dr Dan Stark

Please send hard copy of this pro-forma to Dr Dan Stark’s secretary
(Amanda Rose, Oncology, Level 4, Bexley Wing, St James’s Institute of Oncology, Telephone: 0113 2068266)

<table>
<thead>
<tr>
<th>Patients name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GP details</td>
<td></td>
</tr>
<tr>
<td>Name of Referring Consultant</td>
<td></td>
</tr>
<tr>
<td>Local hospital reference/case note number</td>
<td></td>
</tr>
<tr>
<td>NHS number</td>
<td></td>
</tr>
<tr>
<td>Date of birth</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Contact telephone number for the patient (for telephone contact from Leeds to arrange imaging and clinic appointment)</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Patient awareness</th>
<th>Has the patient been told cancer is a possible diagnosis for their testicular swelling</th>
<th>Y/N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Has the patient been informed they will have contact from the Germ Cell Tumour Service in Leeds as a result of this surgery</td>
<td>Y/N</td>
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<table>
<thead>
<tr>
<th>Approximate length of history (in months)</th>
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</table>

<table>
<thead>
<tr>
<th>Pre-operative findings</th>
<th>Chest X-ray result</th>
<th>Normal/Abnormal</th>
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<tbody>
<tr>
<td></td>
<td>Testicular ultrasound result</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Laterality of tumour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inguinal orchidectomy date</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pre-operative tumour markers sent</td>
<td>Y/N</td>
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| Other notes/concerns (The patient will be seen within 14 days of orchidectomy unless problems are raised here.) |  |

# Appendix iv Yorkshire Cancer Network, Penile Cancer

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<th>Maximum timeline in days</th>
<th>Quality Criteria</th>
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<tr>
<td>-1</td>
<td>Cancer Waiting Times monitored throughout the pathway</td>
</tr>
<tr>
<td>0</td>
<td>Criteria 1 Patient &amp; cancer experience of the pathway</td>
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<tr>
<td>within 7-14</td>
<td>Criteria 2 100% of patients discussed at an MDT with a treatment plan decision</td>
</tr>
<tr>
<td>21</td>
<td>Criteria 3 Compliance with referral from Unit to Centre by day 31</td>
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<tr>
<td></td>
<td>Criteria 4 100% of patients admitted to the Cancer Registry</td>
</tr>
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</table>

## YCN, HYCCN & NTCN Supranetwork Penile Cancer Pathway v2.2 March 2011

### Pre-Referral
- GP to assess patient and refer to hospital on a 2-week wait form (ensuring the patient is aware that cancer is suspected).

### Referral
- Urgent GP suspected penile cancer referral received. Patient contacted and offered appointment within 14 days.

### First seen
- Patient attends OPD appointment in Cancer Unit or presents as inpatient/acute. Other suspected penile cancer patients not referred on 2-week wait protocol may join pathway at this stage and be upgraded where clinically appropriate including OPD referrals e.g. dermatology or GU clinic.

### Biopsy
- Biopsy undertaken as a short stay surgery patient. Patient informed that if the biopsy is positive they will be referred to Leeds Teaching Hospitals NHS Trust (see Penile Pathway Guidelines pgs 2-3). If the biopsy is excisional this may be regarded as first treatment for cancer waiting time purposes.

### Results
- Patient attends OPD in Cancer Unit for results of biopsy
  - If cancer is diagnosed the Penile Cancer Programme (see page 4) is fixed to Mr Earnley’s secretary (Jean Carter) at the Leeds Teaching Hospitals NHS Trust (0113 2064320)
  - If the referral is an Inter Trust Transfer an MDT Alert is emailed via NHS Net by Unit Urology Co-ordinator or details entered directly onto the Leeds PPM if access available.

### Patients with Carcinoma in Situ may be treated with topical cream at OPD.

### Decision to Treat
- Patient attends OPD at Leeds Teaching Hospitals NHS Trust with results of test.
- Treatment options discussed.
- Urology CNS present in clinic for breaking bad news support counselling.
- Patient information offered plus CNS contact details.
- Leads CNS to liaise with the unit CNS regarding patient management

### Imaging
- Specialist imaging (MRI/CT etc.) arranged as appropriate

### Pre-Assessment
- Undertaken at St James’s

### First Definitive Treatment
- Surgical treatment: Partial/Total penectomy +/- lymph node dissection or Glansectomy & split skin graft
- Chemotherapy administered as per Penile Cancer Pathway Guideline
- Palliative care: refer patient back to Unit for Supportive and Palliative care
- Communication of final treatment by letter to GP, referring Consultant and Leeds MDT Co-ordinator (who will inform the relevant Unit Urology MDT Co-ordinators)

### Follow-up
- Follow up as per Penile Cancer Pathway Guideline (page 3) for up to 5 years
  - After 5 years discharge patient to GP or referring Consultant

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**NEYHCA Guidelines for the Management of Urological Cancers Version 5.8 February 2013 | Page 97**
YCNYC & NTCN Supranetwork Pathway

<table>
<thead>
<tr>
<th>Title</th>
<th>Penile Pathway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author &amp; Owner</td>
<td>Yorkshire Cancer Network Urological Cancer Site Specific Group</td>
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**Version Control**

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<th>Date</th>
<th>Revision summary</th>
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<tr>
<td>1.0</td>
<td>July 2009</td>
<td>Original version published</td>
</tr>
<tr>
<td>2.1</td>
<td>November 2011</td>
<td>Addition of TYA Pathway details in the Appendix.</td>
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<tr>
<td>2.2</td>
<td>March 2012</td>
<td>Review date changed, otherwise no change to pathway.</td>
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**Penile Cancer Pathway Guideline**

This pathway applies to:

- Yorkshire Cancer Network (YCN)
- Humber and Yorkshire Coast Cancer Network (HYCCN)
- North Trent Cancer Network (NTCN)

The Penile Cancer Supranetwork Pathway incorporates the YCN Supportive and Palliative Care Pathways. Key discussion points, key information, key worker contacts and holistic assessments are identified by symbols along the penile pathway.

The Penile pathway is also supported by a tumour specific Patient Information Pathway. The Patient Information Pathway supports the steps in the penile pathway such as referral, diagnostic procedures and tests, diagnosis, treatments and side effects and support services. Each stage is numbered from 1 to 8 indicating when the information might be offered. Additional national resources to meet assessed or expressed patient/carer information needs may be offered at any stage along the pathway.

a) Criteria for referral to the Leeds Specialist Urology MDT

All newly diagnosed penile cancer patients should be referred to the Specialist MDT at Leeds Teaching Hospitals NHS Trust (LTHHT).

b) Referral to Centre Process

Referral to be made to Mr I Eardley, Consultant Urologist at LTHHT by faxed Penile Cancer Referral Form (see page 3), or letter with all the information from the pro-forma if that is preferred. The responsibility for this referral falls to the referring Consultant.

c) Referral received at Leeds

When the Penile Cancer Referral Form (see page 3) is received by Leeds, Mr Eardley’s secretary (Joan Carter) will fax back to the Cancer Unit with a Confirmation of Penile Cancer Referral Proforma (see page 4) and date of the OPD at LTHHT and date of the MDT review. Referral will be read by Mr Eardley and decision made regarding the sequence of MDT, OPD and imaging. Mr Eardley’s secretary to liaise with the Leeds Urology MDT Co-ordinator regarding the decision. If aged between 16–24 years the patient will also be referred to the Teenage and Young
Adult (TYA) MDT at Leeds, although primacy of treatment would remain with the penile cancer Specialist MDT.

d) Pathology and Radiology

Pathology slides should be sent to Dr Patricia Harnden, Consultant Histopathologist, Department of Histopathology, St James University Hospital Leeds Teaching Hospitals NHS Trust

Imaging to be sent to Dr Jonathon Smith Consultant Radiologist at St James’s Hospital, Leeds Teaching Hospitals, NHS Trust

e) Leeds Specialist Bladder and Penile Cancer MDT

This consists of:
Urological Surgeon (Mr I Eardley, Mr W Cross)
Clinical Oncologist (Dr K Franks)
Medical Oncologist (Dr J Chester)
Specialist Pathologist (Dr P Hamden, Dr S Bhatiarai, Dr S Chilka)
Plastic and Reconstructive Surgeon (Mr M Liddington, Mr H Peach)
Specialist Uro - Radiologist (Dr J Smith, Dr M Weston)
Urology Cancer Nurse Specialist (Miss Anne Storey)

The Leeds Specialist Bladder and Penile Cancer MDT is held weekly on Tuesday at 08.00

f) Treatment summary

MRI scanning is used to stage the primary tumour, with CT scanning being used for follow-up assessment of the inguinal lymph nodes.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ta and CIS</td>
<td>Once histological confirmation has been made this is treated initially by 5 FU cream and if this fails by resurfacing of the glans penis with split skin grafting</td>
</tr>
</tbody>
</table>
| T1 (G1, G2) | 1. Standard treatment is glansectomy with free skin grafting.  
2. Occasionally local excision biopsy is appropriate |
| T1G3 | 1. Standard treatment is glansectomy with free skin grafting  
2. Occasionally partial penectomy is appropriate |
| T2, T3 | Partial penectomy or total penectomy is appropriate to these cases  
In selected cases, glansectomy with split skin grafting is appropriate |
| T4 | Total penectomy is appropriate  
This often requires the assistance of the plastic and reconstructive surgeons with total penectomy and the use of a flap into the perineum. |

Clinical N0 disease

Current practice is prophylactic bilateral modified inguinal lymphadenectomy for high-risk cases (T2 or greater, and G3 tumours). In other cases observation with regular CT scanning of the inguinal regions is undertaken.

N1 disease

1. Palpable lymphadenopathy is treated by modified inguinal lymphadenectomy  
2. When associated with low volume pelvic lymphadenopathy, then pelvic lymphadenectomy is undertaken  
3. When there is no associated pelvic lymphadenopathy, and there is evidence of significant inguinal disease (2 or more nodes included or extracapsular disease) then pelvic radiotherapy is used with adjuvant radiotherapy to the inguinal region

Follow Up
1. Patients are seen 3-4 monthly for the first year, six monthly for the 2nd year and annually thereafter  
2. CT scanning is undertaken routinely: 4-6 monthly in years 1 and 2, and annually thereafter  
3. Patients are discharged to the referring hospital, if they wish, and if they are disease free at two years  
4. Patients are discharged if they remain disease free for 5 years

NEYHCA Guidelines for the Management of Urological Cancers Version 5.8 February 2013 | Page 99
PENILE CANCER REFERRAL PROFORMA

PATIENT DETAILS
Name .......................... DOB ........................................
Address ........................ Hospital number ..............................
................................... NHS number ..............................
................................... Telephone .....................................
................................... Email ........................................

GP DETAILS
Name .......................... Address ........................................
.................................................................

CANCER UNIT DETAILS
Consultant ........................ Hospital ........................................
Telephone ........................ Fax ........................................
Email ................................. Urology CNS contact details ..............................

CLINICAL DETAILS

HISTOLOGY

PLEASE CONFIRM THAT HISTOLOGY SLIDES HAVE BEEN FORWARD TO CANCER CENTRE (C/O Dr Patricia Harnden, Department of Histopathology, St James University Hospital, Leeds)

PROFORMA TO BE FAXED OR EMAILED TO JOAN CARTER (SECRETARY TO MR IAN EARDLEY)

TELEPHONE 0113 2066994
FAX 0113 2064920
EMAIL (NHS net email to be used for patient identifiable data)
EMAIL joan.carter@leedsth.nhs.uk
CONFIRMATION OF PENILE CANCER REFERRAL PROFORMA

PATIENT DETAILS

Name ………………………… DOB ………………………
Address ………………………… Hospital number …………………
……………………… NHS number ………………………
……………………… Telephone ………………………
……………………… Email ………………………

THIS PROFORMA CONFIRMS RECEIPT OF THE REFERRAL OF THIS PATIENT

DATE OF MDT REVIEW ………………………………………
DATE OF OUTPATIENT REVIEW ………………………………

QUERIES SHOULD BE DIRECTED TO JOAN CARTER
(SECRETARY TO MR IAN EARDLEY)

TELEPHONE 0113 2066994
FAX 0113 2064920
EMAIL joan.carter@leedsth.nhs.uk
### Appendix v Names and Roles of the Urology CEG Members (Updated 12.3.2012)

<table>
<thead>
<tr>
<th>Members full name</th>
<th>Job Title</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hull and East Yorkshire Hospitals NHS Trust</strong></td>
<td></td>
</tr>
<tr>
<td>Ms Jane Abson</td>
<td>Business Manager</td>
</tr>
<tr>
<td>Mr David Almond</td>
<td>Consultant Urologist</td>
</tr>
<tr>
<td>Dr Faheem Bashir</td>
<td>Consultant Clinical Oncologist</td>
</tr>
<tr>
<td>Dr Mohammad Butt</td>
<td>Consultant in Medical Oncology</td>
</tr>
<tr>
<td>Dr. Oliver R Byass</td>
<td>Consultant Radiologist</td>
</tr>
<tr>
<td>Dr James Cast</td>
<td>Consultant Radiologist</td>
</tr>
<tr>
<td>Ms Wendy Cayton</td>
<td>Business Manager</td>
</tr>
<tr>
<td>Mr Stephen Claxton</td>
<td>Clinical Nurse Specialist for Urology</td>
</tr>
<tr>
<td>Mr Graeme Cooksey</td>
<td>Consultant Urologist</td>
</tr>
<tr>
<td>Dr Sanjay Dixit</td>
<td>Consultant Clinical Oncologist</td>
</tr>
<tr>
<td>Ms Gaye Hanson</td>
<td>Planning Manager</td>
</tr>
<tr>
<td>Mr John Hetherington</td>
<td>Consultant Urologist</td>
</tr>
<tr>
<td>Dr Mohan Hingorani</td>
<td>Consultant Oncologist</td>
</tr>
<tr>
<td>Ms Linda Hoggarth</td>
<td>National Cancer Network Research Nurse</td>
</tr>
<tr>
<td>Mr Sigurd Kraus</td>
<td>Consultant Urologist</td>
</tr>
<tr>
<td>Mr Andy Myatt</td>
<td>Consultant Urologist</td>
</tr>
<tr>
<td>Mrs Margaret Parrott</td>
<td>Trust Lead Cancer Manager</td>
</tr>
<tr>
<td>Ms Vicky Pullen</td>
<td>Planning Manager</td>
</tr>
<tr>
<td>Ms Wendy Quinn</td>
<td>Director of Operations - Surgery Health Group</td>
</tr>
<tr>
<td>Mrs Lucia Richardson</td>
<td>Research Nurse</td>
</tr>
<tr>
<td>Dr Greta M Rodrigues</td>
<td>Consultant Histopathologist</td>
</tr>
<tr>
<td>Mrs Janet Shipley</td>
<td>Cancer Quality Measures Manager</td>
</tr>
<tr>
<td>Mr Matt Simms</td>
<td>Consultant Urologist</td>
</tr>
<tr>
<td>Ms Sue Spence</td>
<td>Macmillan Clinical Nurse Specialist for Urology</td>
</tr>
<tr>
<td>Mr Brendan Walsh</td>
<td>Clinical Nurse Specialist - Urology</td>
</tr>
<tr>
<td>Mr Jonathan Wood</td>
<td>General Manager, Head of Service, Surgery</td>
</tr>
<tr>
<td>Ms Helen Wright</td>
<td>Cancer Research Business Manager</td>
</tr>
<tr>
<td>Mr Anser Yousuff</td>
<td>Associate Specialist</td>
</tr>
<tr>
<td><strong>Northern Lincolnshire and Goole Hospitals NHS Foundation Trust</strong></td>
<td></td>
</tr>
<tr>
<td>Ms Kay Burns</td>
<td>Macmillan Dietician</td>
</tr>
<tr>
<td>Mr Muzaffar Ahmad</td>
<td>Consultant Urologist</td>
</tr>
<tr>
<td>Mr Liaqat Chowoo</td>
<td>Consultant Urologist</td>
</tr>
<tr>
<td>Ms Gillian Clark</td>
<td>Cancer Nurse Specialist</td>
</tr>
<tr>
<td>Mr Jorge Clavijo</td>
<td>Consultant Urologist</td>
</tr>
<tr>
<td>Mr Laurence Coombs</td>
<td>Consultant Urologist</td>
</tr>
<tr>
<td>Ms Kathy Dent</td>
<td>Lead Research Nurse</td>
</tr>
<tr>
<td>Ms Anne Eckersley</td>
<td>Clinical Nurse Specialist for Urology</td>
</tr>
<tr>
<td>Miss Louise Hobson</td>
<td>Trust Cancer Manager</td>
</tr>
<tr>
<td>Ms Claire Jenkinson</td>
<td>Assistant General Manager</td>
</tr>
<tr>
<td>Dr Edward Kweka</td>
<td>Consultant Radiologist</td>
</tr>
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</table>
### Northern Lincolnshire and Goole Hospitals NHS Foundation Trust - continued

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Role</th>
</tr>
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<tbody>
<tr>
<td>Mr Muhammadshahzad Laghari</td>
<td>Locum Consultant</td>
</tr>
<tr>
<td>Mrs Sally Larn</td>
<td>Clinical Nurse Specialist</td>
</tr>
<tr>
<td>Ms Jacqueline McGuire</td>
<td>Macmillan Dietician</td>
</tr>
<tr>
<td>Ms Olivia Molitor</td>
<td>Cancer Systems Co-ordinator</td>
</tr>
<tr>
<td>Ms Trudy Nurse</td>
<td>Senior Research Nurse</td>
</tr>
<tr>
<td>Ms Sandra Pearson</td>
<td>Research Nurse</td>
</tr>
<tr>
<td>Ms Louise Petchey</td>
<td>Data Manager</td>
</tr>
<tr>
<td>Mr Stuart Tindall</td>
<td>Consultant Urologist</td>
</tr>
<tr>
<td>Miss Deborah Whitehead</td>
<td>Macmillan Lead Cancer Nurse</td>
</tr>
</tbody>
</table>

### Scarborough and North East Yorkshire Healthcare NHS Trust

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Ms Alison Ames</td>
<td>Oncology Research Nurse</td>
</tr>
<tr>
<td>Mr K Brame</td>
<td>Consultant Urologist</td>
</tr>
<tr>
<td>Mr Simon Hawkyard</td>
<td>Consultant Urologist</td>
</tr>
<tr>
<td>Ms Kirstin Hunter</td>
<td>MDT co-ordinator</td>
</tr>
<tr>
<td>Miss Sarah Kent</td>
<td>Lead Research Nurse HYCCRN</td>
</tr>
<tr>
<td>Dr Russell Morgan</td>
<td>Consultant Histopathologist</td>
</tr>
<tr>
<td>Dr Mohammed Musa</td>
<td>Consultant Histopathologist</td>
</tr>
<tr>
<td>Mrs Christine Norris</td>
<td>Cancer Manager</td>
</tr>
<tr>
<td>Ms Carol Popplestone</td>
<td>Macmillan Clinical Nurse Specialist Urology</td>
</tr>
<tr>
<td>Mr Paul Rafferty</td>
<td>Divisional Manager Elective Care</td>
</tr>
<tr>
<td>Mr A Robertson</td>
<td>Consultant Urologist</td>
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</tbody>
</table>

### North East Yorkshire & Humber Clinical Alliance

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Role</th>
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</thead>
<tbody>
<tr>
<td>Mrs Julie Bielby</td>
<td>Macmillan Network Nurse Director</td>
</tr>
<tr>
<td>Dr Carol Hunt</td>
<td>Chair, Network Pathology Group</td>
</tr>
<tr>
<td>Mr Colin Hurst</td>
<td>Macmillan Patient Experience Manager</td>
</tr>
<tr>
<td>Professor Mike Lind</td>
<td>Cancer Medical Director, NEYHCA</td>
</tr>
<tr>
<td>Mr Srdjan Ljubojevic</td>
<td>Cancer Research Network Manager</td>
</tr>
<tr>
<td>Dr Anthony Maraveyas</td>
<td>Clinical Lead, HYCCRN</td>
</tr>
<tr>
<td>Mrs Sherry McKiniry</td>
<td>Chair - Network AHP Group</td>
</tr>
<tr>
<td>Mrs Sue Reid</td>
<td>Network Support Manager</td>
</tr>
<tr>
<td>Mrs Hannah Rossington</td>
<td>Quality and Information Manager</td>
</tr>
</tbody>
</table>

### The Urology CEG Executive Team

**Chair**

Mr Matt Simms  
Consultant Urologist HEYHT CHH

**Vice Chair**

Mr. Laurence Coombs  
Consultant Urologist NLGHFT, SGH

**MDT Leads**

Mr Matt Simms  
Consultant Urologist HEYHT CHH

Mr. Laurence Coombs  
Consultant Urologist NLGHFT, SGH

Mr Simon Hawkyard  
Consultant Urologist Scarborough Hospital

**Member Responsible for User / Patient Information**

Ms Anne Eckersley  
Macmillan CNS NLGHFT, SGH

**Member Responsible for the integration of Service Improvement**

Mr. Laurence Coombs  
Consultant Urologist NLGHFT, SGH

**Member Responsible for Recruitment into Clinical Trials**

Mr John Hetherington  
Consultant Urologist HEYHT CHH
Guidelines Agreed (Clinical, Imaging and Pathology)

Agreement of the NEYHCA Guidelines for the Management of Urological Cancers

The Guidelines are developed by the CEG, taking into account NICE Guidance and the IOG, and are the standard for care in the Network. They are discussed and circulated within the CEG as per the NEYHCA consultation process. All members are given the opportunity to assist in the publication of the guidelines / comment.

The Guidelines must be formally agreed by the Urology CEG at a quorate CEG meeting. Those present at the meeting agree the document on behalf of the group. Those not present at the meeting accept the groups’ decision. The groups’ attendance record for the meeting where the guidelines were agreed can be seen below.

The guidelines agreement sheet is then signed by the Chair, MDT Leads, Imaging group Chair and Pathology Group Chair.

These guidelines were reviewed in January 2013. Version 5.8, was agreed via email by the CEG members. This current version (5.8) has had no changes to the general content but the YCN / NEYHCA pathways and some of the generic sections / contact information has been updated. The document has also been rebranded with the NEYHCA logo etc.

Attendance at the Clinical Expert Group, 18th January 2013

<table>
<thead>
<tr>
<th>Present</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mrs Julie Bielby</td>
<td>Associate Director and Professional Lead for CVD, NEYHCA</td>
</tr>
<tr>
<td>Mr Colin Hurst</td>
<td>Patient Experience and Communications Manager, NEYHCA</td>
</tr>
<tr>
<td>Mr Matt Simms (Chair)</td>
<td>Consultant Urologist, HEYHT</td>
</tr>
<tr>
<td>Mrs Sue Reid</td>
<td>Programme Support Manager (Cancer), NEYHCA</td>
</tr>
<tr>
<td>Miss Laura Wigley</td>
<td>Programme Manager (Cancer), NEYHCA</td>
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<tr>
<td>Mr Muzaffar Chaudhary</td>
<td>Consultant Urologist, NLGHFT</td>
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<td>Miss Deborah Whitehead</td>
<td>Macmillan Lead Cancer Nurse, NLGHFT</td>
</tr>
<tr>
<td>Dr Mark Rogers</td>
<td>Staff Grade, NLGHFT</td>
</tr>
</tbody>
</table>