Urology:
Actions for better kidney cancer care

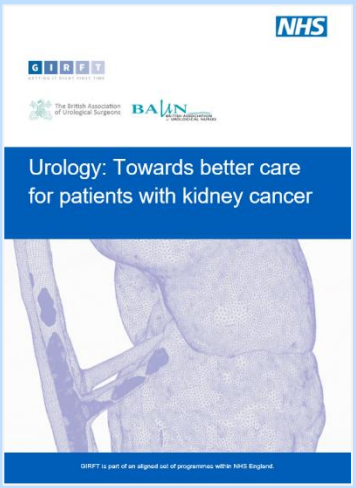
June 2023

This is an abbreviated outline version of the GIRFT guide to kidney cancer care. This outline version should be read alongside the full guidance document, available at:

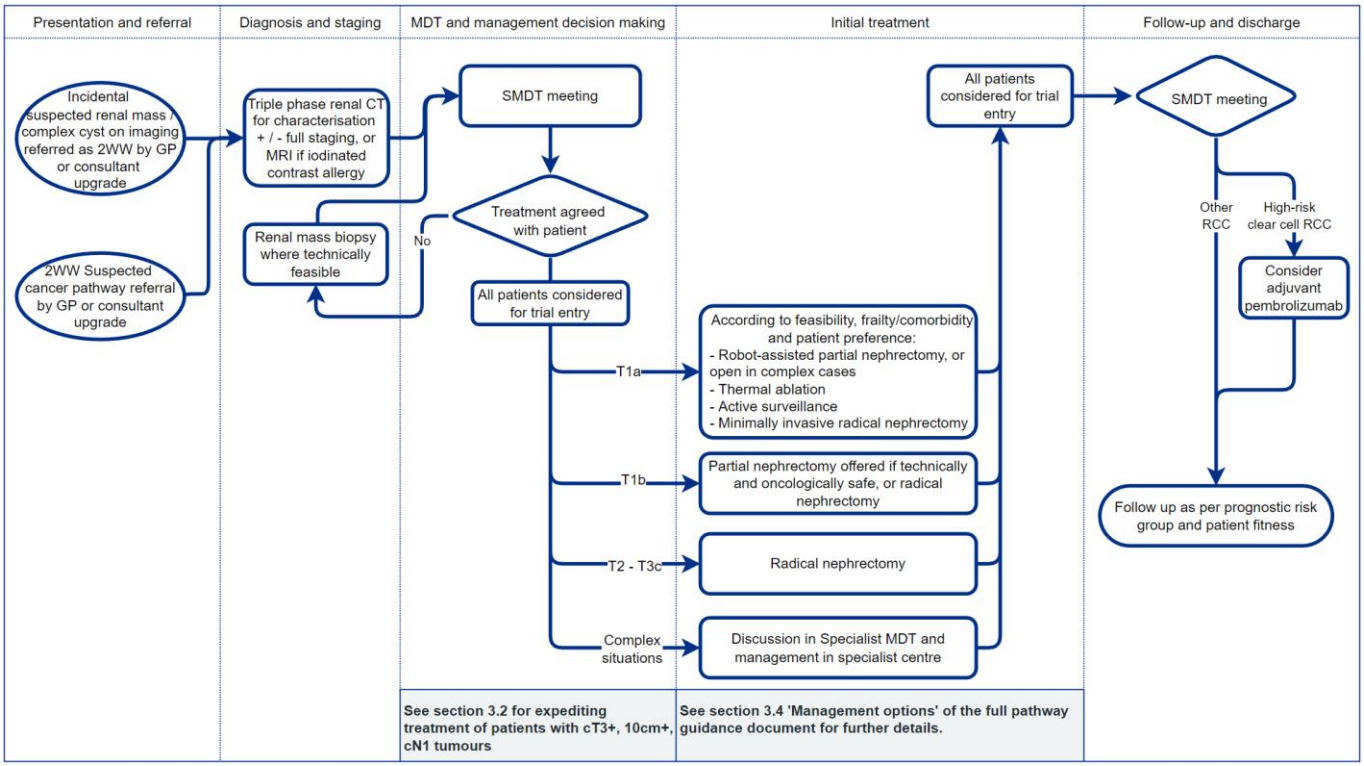
www.gettingitrightfirsttime.co.uk/urology

The full guide contains:

- Details on the case for change
- Significant further detail on each pathway section
- Case studies of best practice
- Templates and examples, such as for patient information leaflets, MDT outcome sheets, scoring systems and clinic letters
- More information to support implementation of key quality actions



The key components of an effective kidney cancer management pathway mapped on a flow diagram:



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1 Identification and diagnosis of patients

- All patients with a suspected renal mass should have either a triple phase abdominal CT or MRI abdomen
- For lesions with indeterminate enhancement, consider contrast enhanced ultrasound
- For all patients with solid small renal masses consider offering biopsy, where technically feasible, if it will impact patient's choice or clinician's recommendation on treatment

Most patients do not present with symptoms at the early stages, where the opportunity for curative treatment is greatest, 60% are diagnosed incidentally from imaging or tests for other reasons. Imaging such as ultrasound should be considered for persistent abnormalities detected in haemoglobin, liver function or CRP tests.

Contrast enhanced triple phase CT of the kidneys is the definitive imaging modality to define a solid renal mass or complex cyst. Where enhancement is equivocal or indeterminate, contrast enhanced ultrasound can be helpful to determine vasculature and whether the mass is solid in nature rather than cystic. Contrast MRI of the abdomen is an option where patients have reduced renal function or iodinated contrast allergy.

Biopsy has a high diagnostic rate and excellent safety profile, and is increasingly acceptable where patients have: a small renal mass (<4cm), high risk of morbidity or mortality from surgery. Biopsy diagnostic yield is lower for patients with masses <2cm, who can generally be safely placed on active surveillance.

Discussion of biopsy should be included in the consultation and offered to all patients when the results may impact on the patient's choice or the clinician or multidisciplinary team's recommendation of treatment. Incorporating a biopsy adds on average 21 days to the diagnostic pathway. In the context of a small renal mass, this has a negligible impact on disease prognosis.

See page 9 of the full guide for detail on kidney cancer presentation and biopsy, including a case study on a biopsy service within the 28 day Faster Diagnosis Standard.

2 Prompt entry into the pathway and tumour staging

- Patients with cT3+, 10cm+, cN1 tumours should be expedited through the cancer pathway
- Contrast enhanced CT chest abdomen and pelvis is the key staging investigation for a patient with a renal mass
- Where there is any concern about post-operative CKD 3+ a DMSA scan should be undertaken

Patients likely to have higher risk disease (e.g. >10cm, cT3+, tumour thrombi, cN1 tumours on imaging) should have fast tracked assessment within the next week and expedited treatment.

Initial staging: Local: Contrast-enhanced triple phase CT of the kidneys, including non-contrast, arterial and venous phases. The CT report should detail the laterality of the renal mass, clinical TNM stage, presence or absence of venous tumour thrombus and pathology in the contra-lateral kidney. Repeat imaging for surgical planning should not delay review at the Specialist MDT.

Initial staging: Distant: To take place on same visit, if possible. CT chest and pelvis performed in all patients with an enhancing renal mass or complex cyst for identification of distant metastases out with the abdomen. For small renal masses (<4 cm) without systemic symptoms, pre-operative CT chest and pelvis may not be necessary, particularly if this requires an additional hospital visit.

Staging in patients with iodinated contrast allergy or significant renal impairment (e.g CKD4, eGFR<30ml/min): Where such imaging will change treatment recommendations, for example those considering surgery. gadolinium enhanced MRI abdomen and pelvis with non-contrast enhanced CT chest are alternative staging modalities

Ancillary imaging modalities

Local staging: Magnetic Resonance Venogram: Where venous tumour thrombus level is uncertain or a change in level could alter surgical approach i.e. level of the liver, hepatic veins, or diaphragm.

Distant staging: CT Head and Bone scan: When localising symptoms present. Not routine as asymptomatic brain and bone metastases in otherwise localised renal cancer are very rare. Bone scans can provide false negative in early, asymptomatic metastatic disease.

Assessment of renal function: DMSA renogram: Consider when treatment for localised RCC is planned with evidence of contralateral renal atrophy or CKD ≥stage 3. Can inform prediction of deterioration in renal function and pre-operative referral to renal services based on age, history of diabetes, pre-existing eGFR and planned surgical treatment and/or using scoring systems.

Restaging prior to treatment or following a delay in the pathway: Repeat CTCAP or MRV ideally within 48 hours of surgery (and certainly within 7 days) for patients with IVC tumour thrombus or high-risk masses (>10cm; cT3+; cN1) where there has been a delay from diagnosis to treatment of over 3 months, particularly for co-morbid patients with higher surgical risk.

See page 10 of the full guide for detail on staging imaging and ancillary imaging modalities, including reasoning behind the recommended approaches.

3 Multidisciplinary team approach

- All patients with suspected kidney cancer should be upgraded to a local suspected Cancer Waiting Time tracking pathway to ensure timely investigation and management
- SMDTs should ensure that there is always representation by a urologist performing kidney cancer surgery, an oncologist with a special interest in kidney cancer management, uroradiologist and uropathologist
- After nephrectomy, all patients should be assigned a risk group for cancer recurrence to allow risk-stratified follow-up

All patients with suspected kidney cancer should be upgraded to a Cancer Waiting Time (CWT) tracking pathway to ensure timely investigation and management.

MDTs should:

- Adhere to agreed local Cancer Alliance follow-up protocols
- Ensure attendance and representation from: urological surgeons, clinical oncologist and medical oncologist, uroradiologist, uropathologist, urological cancer CNS, MDT co-ordinator.
- Embed cancer pathway co-ordinators to facilitate time-efficient patient investigation and management.
- Review relevant imported imaging / histopathology and note discrepancy between the MDT opinion and original report in the MDT outcome document.
- Consider renal mass biopsy. where technically possible, (and if this should be USS or CT guided) in all patients with small renal masses, except those suitable for symptomatic management alone (watchful waiting).
- Consider all patients with suspected kidney cancer of all stages for trial entry
- Clearly state if there is more than one equally effective treatment option, and list all alternatives where a specific treatment option is recommended, even if not all these alternatives are available locally

After nephrectomy, assign patients to a risk group for risk-stratified follow-up. Assign patients with metastatic kidney cancer to an appropriate validated prognostic group (MSKCC or IMDC/Heng) to inform further discussion regarding the appropriateness of cytoreductive nephrectomy and systemic therapy.

See page 12 of the full guide for detail pre-MDT pathways and processing and MDT process, function, discussions and outcomes. The full guide includes an example MDT outcome document.

4 Management options

- For all mass stages, all safe management options should be discussed, patient preference is key in final decision making
- T1a masses – multiple management options based around individual patient and tumour characteristics
- T1b masses – radical or partial nephrectomy prioritised around technical/oncological safety and renal function
- T2-3a masses – radical nephrectomy prioritised
- Complex scenarios require SMDT discussion and management in expert centres

Management options should be considered after MDT discussion, which would include review of renal function, imaging and any renal mass biopsy results.

T1a: According to feasibility, frailty/comorbidity and patient preference: RAPN or open partial nephrectomy in complex cases, thermal ablation, active surveillance, minimally invasive radical nephrectomy, discussion of any available clinical trials e.g. PARTIAL, EASE

T1b: Partial nephrectomy (robot-assisted or open) offered if technically and thus oncologically safe, or radical nephrectomy (usually minimally-invasive but open may be necessary).

T2-T3a: Radical nephrectomy (minimally invasive or open surgery based around individual patient and mass details as well as local surgical expertise).

Complex situations (i.e. large masses in patient with poor renal function or unfit for active treatment, familial syndromes, single kidney, tumour thrombus, cytoreductive nephrectomy, multiple masses): May require discussion in Specialist MDT and management in specialist centre (possibly on a regional or national referral basis) with the required support from associated specialities.

See page 14 of the full guide for listing of management options, including complex situations. The full guide includes case studies on image-guided thermal ablation and stereotactic ablative radiotherapy.

5 Management communication and shared decision making

- A urological cancer Clinical Nurse Specialist (CNS) is an essential member of the kidney cancer management team
- Patients should be encouraged to attend with a partner/friend, and the consultation should be supported by a CNS
- Show the patient their CT scan and consider drawings, digital and 3D models to explain the situation and management
- Document the full range of management options discussed
- Write a letter to the patient recording the consultation discussion in lay language
- Make use of existing patient information materials

Conversations with patients will be personalised, but it is helpful to have a starting point for these conversations in the form of an ‘Ideal Consultation’. The desired outcome is to communicate the situation and options for treatment and monitoring to patients, and establish their priorities to make an informed decision.

Setting up the initial consultation: Encourage patients to bring a family member or carer and to record the consultation on their phone. Inform patients that they will be sent a written summary. Give the patient an idea of timescales for investigations and treatments, to reduce stress and manage expectations.

Establish the patient's understanding and provide information on their situation: Patients with masses <4cm should be reassured that it may be benign, and if it is cancerous the current chance of small masses becoming metastatic is very low (~1%). CT images and 3D models can be shown to the patient to provide a comparative illustration of mass size and facilitate discussion on treatment options.

Ascertain the patient's priorities for their health and wellbeing, which will drive their choice about treatment and/or surveillance options.

Explain the full range of management options and document these in the clinical notes and a letter to the patient. When the patient chooses an option, provide more detail on this. It can be helpful to leave the patient with the CNS to discuss the options further. Patients must be told they have time to consider the options or change their mind. The CNS should contact the patient to confirm management decisions.

Consent, information and contact: Consent is a process occurring across multiple interactions and using several sources of information. The consent form itself is ideally completed at a consultation and again on the day of the operation. Consider video consenting. Provide patients with an opportunity to ask more questions and with contact details for the CNS.

Frontload investigations: e.g. preassessment clinic on the same day as consultation, using six-minute walk test as a guide to fitness for surgery. ACS NSQIP surgical risk calculator may aid decision making around risk of intervention vs the mass being treated. Investigations necessary for trial eligibility should also be arranged.

Management of patients unfit for active treatment: Agree clear follow-up plan and offer patient ongoing support. Avoid routine imaging that won't impact on management. Reassure patient if they are unlikely to suffer any symptoms, or discuss symptom management strategies. With more advanced disease, provide opportunity to discuss potential symptoms and risks of metastases or renal cancer death. Ensure patients feel supported and continue to have access to and support from a CNS. Discuss referral to palliative care, psychological and social support. Document and communicate with patient and GP in same manner as active treatment.

See page 15 of the full guide, which also includes links to information sheets and patient information, an example patient letter and case studies on video consultations and implementing infographics.

6 Active surveillance of small renal masses, complex cysts and oncocytomas

- Active surveillance should be discussed with all patients with a SRM and prioritised in patients with solid lesions or complex cysts <2cm
- Bosniak 1 and 2 renal cysts are benign and do not need review in the MDT, these patients can be reassured and discharged
- Oncocytic renal neoplasms are generally indolent lesions and suitable for active surveillance

Active surveillance (AS) is a management option for small (T1a) renal masses and complex cysts, or biopsy-proven RCC, especially those smaller than 2cm. Prioritise AS in patients for whom intervention or other risks are deemed to outweigh the benefits of treatment. Offer renal mass biopsy, if technically feasible, to all patients with a small renal mass considering AS.

Offer CT, MRI or USS (to minimise radiation exposure) within 6 months of starting AS and at least annually thereafter as the AS imaging strategy. Chest imaging should be undertaken at baseline and as clinically indicated.

Triggers to consider active treatment: mass size increasing >3cm, growth rate >5mm/year, stage progression, a clinical change in the patient and patient desire for active treatment.

Cystic renal lesions: **Bosniak 1 and 2 cysts:** urology MDT review not needed, and can be discharged with reassurance.

Bosniak 2F: 5 years surveillance, usually allows any underlying malignancy (5-10% risk) to becomes apparent. Additional MRI or contrast-enhanced ultrasound, with uroradiologist advice, may help differentiate between Bosniak 2 and 2F cysts.

Bosniak 3 and 4: Due to the risk of malignancy manage according to the same principles as enhancing solid renal masses. Consider percutaneous biopsy where the risk and benefit of intervention is equivocal.

Oncocytic Renal Neoplasms: describes a spectrum of pathological features from benign oncocytoma to chromophobe RCC as such renal mass biopsy may be reassuring. Consider for all treatment options (surveillance, ablation, surgery) accounting for mass factors and patient general health. Patients with small oncocytic renal neoplasms should generally be offered active surveillance.

See page 18 of the full guide for further detail on all mass and cyst types.

7 Delivery of renal cancer surgery

- Appropriate management options and the location of treatment should be decided by the Specialist MDT
- Robot-assisted partial nephrectomy, open radical nephrectomy for venous tumour thrombus and cytoreductive nephrectomy should only be performed in high volume referral centres
- Robust governance processes should be in place to regularly assess outcomes

The ability to offer a safe, high-quality service to patients is more important than the location of care.

The NHS England Service Specification for Urological Cancers lists cases that must only be performed in the host hospital of the SMDT, or affiliated sub-specialty units, e.g. neurosurgery for brain metastases.

Laparoscopic nephrectomy: now used in fewer cases than historically because of the increase in minimally invasive surgery and robot-assisted partial nephrectomies, so these tend to be larger, more complex masses than in the past. Recommended: having at least two consultant urologists trained and competent in procedure and support from the wider consultant body; surgical team familiarity with procedure and consideration of minimum case numbers; onsite vascular and hepatobiliary, pancreatic, upper gastro-intestinal and colorectal expertise; 24/7 interventional radiology support; Cancer Clinical Nurse Specialist; nursing support for enhanced recovery.

Robot-assisted partial nephrectomy (RAPN): Performed in SMDT centre as per service specification. 24/7 onsite IR support is essential. Two surgeons supporting the service.

Venous tumour thrombus (VTT) surgery: Requires the skills of multiple surgeons from different specialities supporting the service. Should only be performed in centres delivering ~1 per month. Recommended: two urologists working together; hepato-pancreato-biliary or liver transplant surgery support; cardiothoracic surgery support for intrathoracic cases; anaesthetists with expertise in patients with liver compromise and haemodynamic instability.

Cytoreductive nephrectomy: indications reduced following trials but there is still a role for this approach usually following immunotherapy. Cases considered by an expert surgeon and oncologists in SMDT and then joint consultation. Performed in a similar set-up to the VTT surgery mentioned above.

See page 20 of the full guide for detail on all mass and cyst types, full recommendation lists for delivering safe services and case studies on short stay surgery and DGH nephrectomy services.

8 Perioperative systemic treatment

- Decisions surrounding perioperative systemic therapy should be made within the multidisciplinary team setting
- Neoadjuvant treatment should be considered for medically fit patients within clinical trial frameworks
- Decisions surrounding adjuvant systemic treatment need to be personalised based on risk vs benefits for individual patients taking into account risk of recurrence, potential impact of toxicity, and eligibility for trials

The landscape for use of drug treatment before or after surgery for localised RCC is rapidly changing as a result of clinical trials and changes in practice. Drug treatment can now be considered both pre- and post-surgery but requires input from the entire multidisciplinary team for safe delivery of both treatment modalities in the peri-operative setting.

Neoadjuvant treatment with targeted therapies, either alone or with immune checkpoint inhibitors appears safe and effective in initial clinical trial results. Consensus is not yet established and many clinical trials are active. Neoadjuvant treatment is not recommended outside a clinical trial framework and should only be used after MDT discussion in specialised centres.

Adjuvant treatment: pembrolizumab has NICE approval for up to 1 year as an option for adjuvant treatment of RCC at increased risk of recurrence after nephrectomy, with or without metastatic lesion resection, in adults. Decision on adjuvant systemic therapy are multifactorial, including: performance status, medical comorbidities, histological subtype and individual patient's attitudes to: risks of recurrence and treatment-related side effects, impact of continued treatment, reporting of side effects, and adherence to advice.

See page 23 of the full guide for detail on decision factors for adjuvant systemic therapy and case studies on discussion of clinical trials and adjuvant treatment.

9 Post-surgery follow-up

- Follow-up should be personalised for patients based on their mass histology and competing health risks
- In the case of a positive margin at partial nephrectomy, the patient should be followed up at the next more intensive follow-up level
- Adjuvant drug treatment should be discussed following surgery in patients likely to be eligible for consideration of its use

Patients undergoing surgery or ablation for RCC should be seen about 4-6 weeks post-operatively. This visit is used to check on their recovery, discuss histopathology results, agree follow-up strategy, identify suitability for clinical trials and/or to receive adjuvant treatment.

Prompt detection of recurrent diseases, where treatment might improve survival, is an objective of follow-up. A risk-stratified approach, based on a synthesis of existing guidelines, is offered in the table below as a minimum standard. This may need to be modified and personalised to the patient and with their agreement. Contrast enhanced CT chest, abdomen and pelvis is the preferred imaging modality in most cases, with MRI abdomen / pelvis together with non-contrast CT chest as an alternative where necessary.

Early identification of local recurrence is particularly important for these patients who may be treated with further surgery or ablation and might expect a good outcome, so an intermediate risk schedule may be preferred. Where there is a positive surgical margin after partial nephrectomy, imaging frequency should be increased to the next risk classification level.

Recommended risk stratification: Clear cell RCC: Leibovich score. **Papillary RCC**: VENUSS score. **Oncocytic renal neoplasm of low malignant potential**: low-risk protocol unless otherwise decided after MDT review.
Benign renal oncocytoma confirmed with complete excision: discharge from oncological follow-up. **Chromophobe RCC**: UISS prognostic system. **Collecting Duct Carcinoma**: CTCAP 6 monthly for 3 years then annually up until 5 years.

Minimum recommended imaging strategy after surgery (based on synthesis of EAU 2022, AUA 2021, NCCN and CAU Guidelines)

Risk profile	3m	6m	9m	1y	1.5y	2y	2.5y	3y	4y	5y	> 5y
Low	-	-	-	CT	-	-	-	CT	-	CT	Discharge
Intermediate	-	CT	-	CT	-	CT	-	CT	CT	CT	CT every 2y*
High	CT	CT	-	CT	CT	CT	-	CT	CT	CT	CT every 2y*

CT – CT chest, abdomen and pelvis
*After 5 years a shared decision should be reached with the patient regarding ongoing surveillance taking into account their fitness and wishes

Renal function monitoring: Check renal function (creatinine / eGFR) at first post-surgical visit and subsequently at clinician's discretion, ideally coinciding with contrast-enhanced cross-sectional imaging. Reserve other blood tests for patients where there is concern or evidence of metastatic disease.

Patients with hereditary renal cancer: Discuss a referral to medical genetics with patients ≤45 years with a new renal cancer, or suspicion of hereditary RCC

Follow-up after ablation: Contrast enhanced cross-sectional imaging at 3 months to ensure primary treatment efficacy. Initial scan at 4-6 weeks for those in initial learning curve. Then as per intermediate risk. High risk strategy for those with early experience in thermal ablation.

Remote vs face-to-face (F2F): First post-operative surgical review ideally F2F. Encourage patients to attend with a family member or carer. CNS should be present. For non-biopsy patients this will be the first time they will hear whether their mass was cancerous. Subsequent outpatient review may be F2F or remote (telephone or video). Schedule all remote appointments in advance, as unscheduled telephone appointments may cause anxiety or alarm.

Nurse-led follow-up: Where possible, patients with established follow-up regimens after treatment for localised RCC should be reviewed in clinics led by cancer CNS. Nurse-led clinics should have agreed inclusion criteria, protocol and CNS support (access to consultants and ability to request MDT review.)

Patient support: After surgery, some patients may feel abandoned by the system and should have the option to discuss their mental health, led by the CNS. Timely intervention with signposting to support such as Kidney Cancer UK, Macmillan and Action Kidney Cancer is an integral part of follow-up.

Communication with patients: Offer patients the opportunity to view their follow-up scans if there is a finding, to help visualise any changes during surveillance. Take the lead from patients on how much information they want, but prepare all patients, even low risk, for the possibility of recurrence. Give information both verbally and in writing, to aid recall. Make use of existing high quality leaflets.

Communicate any decided timetable for surveillance with the patient and schedule scans if possible, with an explanation of the decision-making process and reference to the individualised risk assessment for that patient. Consider impact of 'scanxiety' caused by delays, with many patients waiting over 8 weeks for results, and set expectations. If relevant provide information on life with less than two kidneys.

See page 25 of the full guide for detail on follow-up and patient communication, including example information for patients on planned surgery and post-nephrectomy, and a protocol for nurse-led clinics.

Further content in the full version of the guide

Case studies

- Nurse led services at The Royal Free London NHS Foundation Trust
- Biopsy service within 28 day Faster Diagnosis Standard at The Royal Free London NHS Foundation Trust
- Video information and consenting for nephrectomy at The Royal Free London NHS Foundation Trust
- Ideal image-guided thermal ablation service from Interventional Oncology United Kingdom (IOUK), part of the British Society of Interventional Radiology (BSIR)
- 'District General Hospital' nephrectomy services at West Suffolk NHS Foundation Trust and North Cumbria Integrated Care NHS Foundation Trust
- Clinical trial discussion throughout treatment journey, at Cambridge University Hospitals NHS Foundation Trust
- Discussion of adjuvant treatment, at Cambridge University Hospitals NHS Foundation Trust

Further resources

- Overarching guidance and information on kidney cancer
- Post-surgery follow-up
- Multi-disciplinary team approach

Delivery checklist

- Covering all pathway sections

Areas for further research

- Upper tract urothelial cancer - UTUC
- Early detection of kidney cancer
- Optimal follow-up after curative treatment

Appendices

- Example MDT template
- Example follow-up letter
- Leibovich, VENUSS and UISS prognostic scoring systems
- Example patient information
- BAUS patient information leaflets and infographics
- National enhanced recovery pathway

Glossary

Acknowledgement of contributors