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GIRFT Greener pathways

A practical guide to decarbonising the bladder cancer care pathway

December 2024

GIRFT is part of an aligned set of programmes within NHS England

GIRFT Greener pathways identify opportunities for the NHS to improve or maintain the quality of patient care while mitigating its environmental impact. These pathways are developed using the cross-specialty, clinically-led GIRFT 'Environmental Lessons Learned and Applied' (ELLA) approach, which uses the clinical pathway as its starting point. We support trusts to build a Greener NHS and meet their commitment to deliver a net zero health service. Find out more at www.gettingitrightfirsttime.co.uk/greener-pathways

Get involved

If you have suggestions or comments on this pathway, or could contribute to making other clinical pathways greener, we encourage you to share these on our FutureNHS discussion page or by email to girft.academy@nhs.net

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Foreword

The NHS has taken a leading role in addressing global warming, with statutory duties to reach net zero greenhouse gas emissions by 2045. Environmentally sustainable models of clinical care are one of several key priorities identified by the Greener NHS team in their roadmap for change. The GIRFT programme is ideally placed to design sustainable models of care because of its national reach and clinically-led approach to identifying and supporting best practices.

In this guide we apply the GIRFT approach to sustainable care pathway design. We have identified many areas where we can lower the NHS carbon footprint whilst promoting high quality care. Some recommendations involve guiding the continued uptake of established GIRFT principles. Others demonstrate improvements available when experienced clinicians and patients intentionally apply sustainable healthcare evidence to the care settings they intimately understand.

This guide has used a data-driven approach to understand where the most impactful and achievable changes can be made to reduce carbon emissions. We have adapted published carbon footprint estimates for healthcare activities: this approach has not been undertaken systematically and at scale before. We will build on this approach going forwards and continue to work with experts in healthcare and environmental sustainability.

Bladder cancer care is the first of many greener pathways GIRFT will develop. We hope that this approach will support trusts to both reduce the environmental impact of the NHS and provide better quality care for patients.

This is an early step in a clinical transformation journey that we must approach with careful consideration, but also urgency. The end goal is expert-led systematic decarbonisation across NHS clinical activity, so that our vital healthcare services minimise the secondary costs that they effect upon the planet.

Joseph John
National GIRFT Fellow, Urology specialty trainee in South West England.

Keith Gray
GIRFT Academic Content Lead

Tim Briggs CBE
GIRFT Programme Chair and National Director for Clinical Improvement for the NHS

John McGrath
Joint GIRFT Clinical Lead for Urology, Consultant Urologist at North Bristol NHS Trust

Kieran O'Flynn
Joint GIRFT Clinical Lead for Urology, Consultant Urologist at Salford Royal NHS Foundation Trust

Introduction

Who should use this guide?

This document is designed for clinical healthcare teams, managers, and supporting staff responsible for the organisation and delivery of bladder cancer services.

Why use this guide?

- Climate change is a rapidly evolving global health emergency.
- The NHS has a significant environmental impact, producing 4-5% of the UK's greenhouse gas emissions – 20-25 million tonnes of carbon dioxide equivalent (CO_2e) per year.
- The NHS has a legal net zero target by 2045. Meeting this target is crucial to avoid the most severe effects of climate change.
- Healthcare teams and patients frequently express willingness to support net zero targets. Highlighting the most important healthcare adaptations will turn intent into action.
- The adaptations described within often offer co-benefits that support the NHS core purpose; to promote health and deliver safe, efficient, and cost-effective care for all.
- Of the care many pathway adaptations we have modelled in developing this guide, the 12 recommendations described within offer the largest greenhouse gas emissions reductions for bladder cancer.

How to use this guide

The guide describes best practice, alongside estimates of the associated greenhouse gas emissions for a typical UK hospital, to guide prioritisation.

Each recommendation is intentionally deliverable on a short timescale. Delivery will involve multiple team members. Support from hospital management and sustainability teams is vital for successful delivery. Within each recommendation, we have set out a list of actions to be taken. The actions can inform hospital green plans, guiding the NHS net-zero transition.

We also highlight key considerations for successful implementation, informed by expert insights. These have been structured using the Behaviour Change Wheel, which provides an evidence-based structure for considering the key factors influencing behavioural change.

Patient, clinical and scientific acceptability

This guidance has been co-developed with a wide group of stakeholders to ensure appropriate recommendations and reasonable “best estimates” of environmental impact.

To achieve these aims three groups have been involved:

- Clinical experts (clinical reference group)
- Patient and public representatives through the NHS and charity (patient reference group)
- Environmental impact assessment and implementation experts (scientific reference group)

Methodology

A complete description of the methodology and references used to develop this guide is contained in an accompanying document, available through the GIRFT Academy website.

Addressing climate change – a work in progress

The 12 recommendations described are not an exhaustive list of all actions that can be taken to positively achieve decarbonisation targets in bladder cancer care. Development of guidance and best practice in this area is an iterative process and the intent is that these high impact actions can be refined and added to as new innovations and research on best practices become available.

Your ideas and feedback on what works and what could be improved or added will be valuable. We encourage you to share these on our FutureNHS discussion page or by email to girft.academy@nhs.net

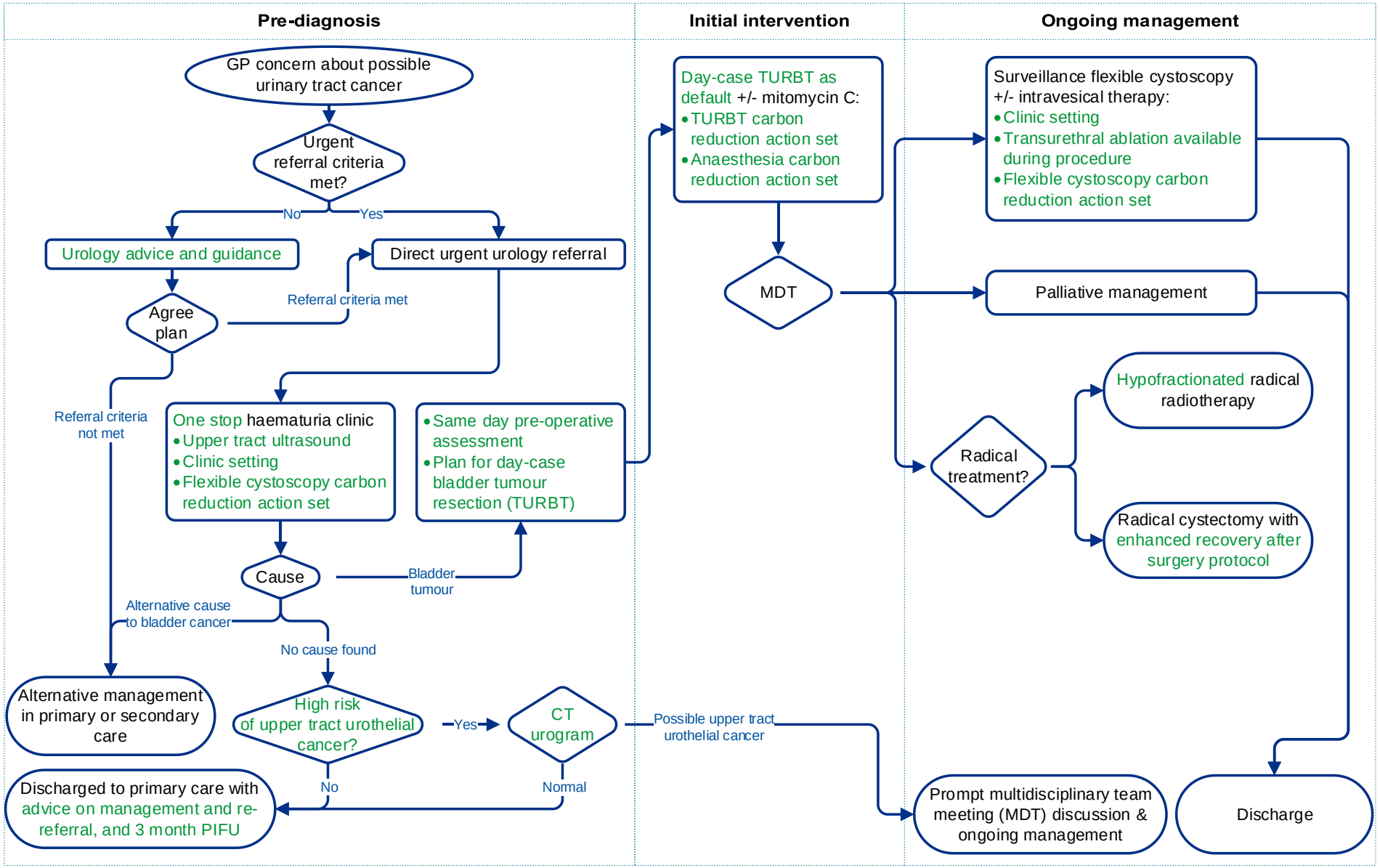
List of highest impact clinical recommendations to decarbonise bladder cancer care

Highest impact clinical recommendations to decarbonise bladder cancer care	Annual emissions reduction across England (t CO_2e)*
Primary care interface	
1. Using advice & guidance to optimise secondary care referrals	591
Diagnosis	
2. Delivering one-stop haematuria clinic assessment	237
3. Decarbonising the flexible cystoscopy procedure **	397
4. Performing flexible cystoscopy in a clinic setting	108
5. Avoiding overuse of CT urogram for patients referred to haematuria clinic	32
6. Delivering same day preoperative assessment	62
Bladder tumour resection	
7. Maximising day-case bladder tumour resection rates **	378
8. Optimising anaesthesia for bladder tumour resection **	88
9. Decarbonising the bladder tumour resection surgical field **	214
Surveillance	
10. Offering biopsy and ablation at check flexible cystoscopy	298
Radical treatment	
11. Delivering an enhanced recovery after cystectomy protocol	52
12. Delivering hypofractionated radical radiotherapy	13
Total reduction	**2,470**

* t CO_2e = tonnes of carbon dioxide equivalent greenhouse gas emissions

** Multi-component Carbon Reduction Action Set

Pathway diagram



Bladder cancer pathway diagram with green text indicating ELLA pathway recommendations.

1. Using advice & guidance to optimise secondary care referrals

Actions

- Use advice and guidance (A&G) for patients who do not meet eligibility criteria for two-week-wait referral to channel patients to the right clinic first time around.
- GPs and urologists should be trained in how to use A&G and have allocated time in their job plans.
- Urology units should have a daily consultant-led A&G rota to provide timely advice, and use standardised advice and guidance templates for common queries.
- Agreed management should take place in a setting where it can be most effectively delivered, considering patient convenience and resource availability.

Rationale

A&G is an opportunity for GPs to obtain online advice from urologists about patient management before secondary care referral. With A&G, patients referred to secondary care can sometimes be pre-investigated or treated in the community before review. They can be seen in a suitable clinic at the outset and obtain timely management.

Around 14% of patients referred urgently for suspected bladder cancer do not meet referral criteria. Asymptomatic non-visible haematuria or lower urinary tract symptoms are common presentations often better managed in primary care or a different urology or renal clinic. A&G offers management and referral support where there is uncertainty.

The GIRFT Academy toolkit for urology A&G and template responses are available here.

Benefits

Emissions reduction

22 kg CO_2e per case

4.6 tonnes CO_2e per average unit annually *

591 tonnes CO_2e across England annually

Patients

Reduced worry

Fewer referral delays

Reduce travel/parking cost

Avoid unnecessary investigations

Care in right place, right time

Health service

Prompt advice

Lower referral costs for primary care

Lower diagnostics demand

Right patient, right clinic

** an average unit is an average sized unit with average performance relative to defined optimal practice.*

2. Delivering one-stop haematuria assessment

Actions

- Offer as standard a one-stop service involving upper tract ultrasound, clinical assessment, and flexible cystoscopy during one hospital visit.
- Arrange for ultrasound to take place before flexible cystoscopy to enable a diagnosis and management discussion immediately after cystoscopy.
- Consider additional sonographer capacity to support one-stop clinics.
- Acquire additional sonography or cystoscopy equipment when it will be frequently used and support one-stop clinic activity, for example in a urology investigation unit (UIU) setting.

Rationale

One-stop cystoscopy and first-line imaging will reduce patient travel. About 44% of patients referred to urology with haematuria are assessed in a one-stop clinic. Most leave with a diagnosis and management plan on the same day. This format can use clinician time more efficiently, with shared decision making in person on the day.

Several one-stop models exist. Some hospitals co-ordinate activities between sonography and urology departments, with patients attending for flexible cystoscopy and discussion after ultrasound. Urology investigation units (UIUs) can be excellent sites for one-stop haematuria assessment. Some UIUs can provide a dedicated sonographer for clinics held at UIUs.

Benefits

Emissions reduction

3.4 kg CO_2e per case

3.3 tonnes CO_2e per average unit annually

237 tonnes CO_2e across England annually

Patients

Same-day diagnosis

Faster management

Less time off from usual activities

Fewer costs

Health service

Efficient use of clinician time

Faster pathway performance

3. Decarbonising the flexible cystoscopy procedure

Actions

- Train staff in environmentally optimised flexible cystoscopy setup, including:
  - Avoiding a sterile cystoscope drape by placing it on the decontamination storage tray or cystoscope packaging
  - Avoiding patient hospital gowns
  - Using only one moisture absorbent pad
  - Using smallest appropriate irrigation bag (e.g. 250mL).
- Modify procurement to support optimised cystoscopy setup.
- Reduce the availability of unnecessary items in cystoscopy procedure rooms.

Rationale

Avoiding some commonly used but unnecessary items can reduce resource use without impacting clinical care. Over 300,000 flexible cystoscopies are performed in England annually, so small consistent changes will have a large impact across the NHS. Around 40% of units already undertake cystoscopy without using patient gowns. This can be achieved without getting patient clothes wet and de-medicalises the procedure for them.

Benefits

Emissions reduction

1.2 kg CO_2e per case

3.1 tonnes CO_2e on average per unit annually

397 tonnes CO_2e across England annually

Patients

De-medicalised procedure

Health service

Reduce cost per case (procurement, reprocessing, and waste)

4. Performing flexible cystoscopy in a clinic setting

Actions

- Avoid running flexible cystoscopy lists in operating theatres.
- Review facilities across hospital sites and consider establishing a UIU to meet cystoscopy capacity needs.
- Co-locate cystoscopy clinic space near diagnostic imaging to facilitate one-stop assessment.
- Where additional clinic space is required, produce business cases which include sustainable design principles and ensure efficient use of additional capacity.

Rationale

Around 30% of units still perform some of their flexible cystoscopy lists in operating theatres. The additional heating, ventilation and air conditioning in operating theatres, alongside other factors, cause this setting to have a particularly high environmental impact compared with clinic and procedure rooms. Operating theatres are also a hospital resource in high demand and limited supply. For these reasons, theatre capacity should be used selectively.

Benefits

Emissions reduction

10.5 kg CO_2e per case

0.84 tonnes CO_2e per average unit annually

108 tonnes CO_2e across England annually

Patients

De-medicalised procedure

Faster appointment

Health service

Improved theatre availability

More cases per list

Fewer staff required

Lower cost per case

5. Avoiding overuse of CT urogram for haematuria assessment

Actions

For units currently performing ultrasound (US) as first-line imaging for all haematuria:

- Continue with US first-line in a one-stop setting.
- Consider CT urogram (CTU) for patients with visible haematuria unexplained by cystoscopy and US and with higher risk features (i.e. persistent haematuria, age >60, smoking history).
- Offer CTU on a patient initiated follow up (PIFU) pathway for 3 months, for patients experiencing subsequent recurrent visible haematuria unexplained by cystoscopy or US.

For units currently with high use of CTU as first-line imaging, consider the approach outlined above or a lower intensity protocol as follows:

- US first-line in a one-stop setting.
- Offer CTU to patients with symptoms unexplained by cystoscopy and US and deemed to be "high risk" based on clinical factors (i.e. persistent visible haematuria, age >60, smoking history), or using the IDENTIFY risk calculator.
- Offer CTU on a PIFU pathway for 3 months for non "high-risk" patients experiencing subsequent recurrent visible haematuria unexplained by cystoscopy and US.

Rationale

There is a low risk of missing upper tract urothelial cancer (UTUC) in the two-week-wait referral setting when using US as first-line imaging with selective use of CTU for patients with higher risk features. The IDENTIFY calculator can assist current CTU-first units to safely reduce CTU use: ~0.09% of non "high-risk" referrals will have UTUC missed by US. PIFU can support case-detection in these rare circumstances.

Benefits

Emissions reduction

9.9 kg CO_2e per case when US is used instead of CT

540 kg CO_2e per average unit annually

32 tonnes CO_2e across England annually

Patients

Avoiding ionising radiation

Faster diagnosis

More one-stop assessments

Better CT scan availability

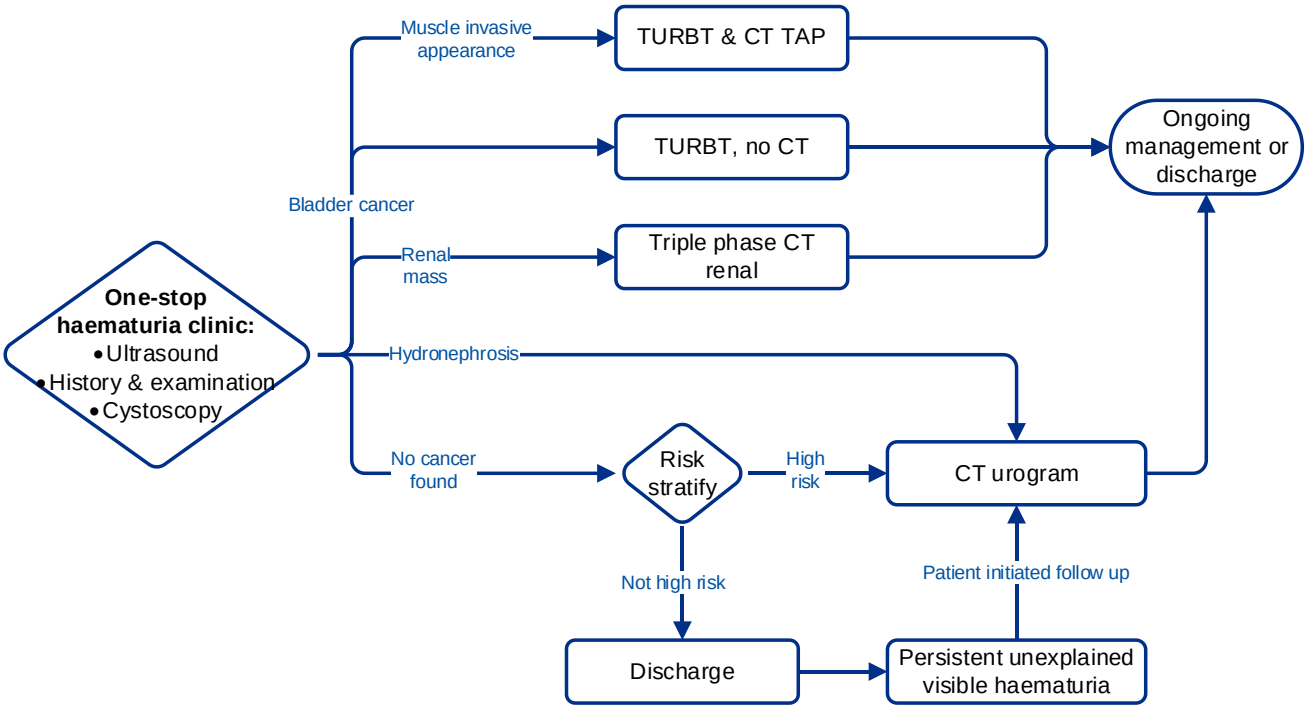
Health service

Lower costs

Reduced CT scan demand

Potentially better RTT performance

Risk stratified imaging pathway



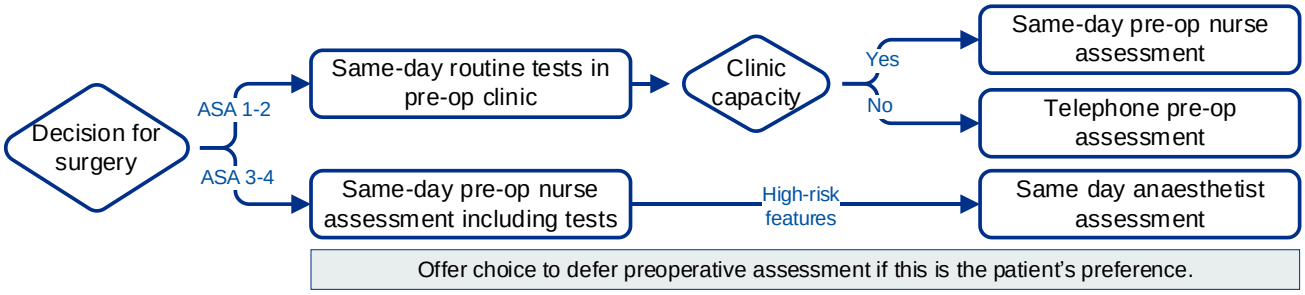
6. Delivering same day preoperative assessment clinic

Actions

- Offer all patients access to preoperative investigations (bloods, ECG) on the day of bladder tumour diagnosis.
- For ASA 1-2 patients, offer same day face-to-face preoperative nursing assessment or telephone assessment on another day.
- For ASA 3-4 patients, offer same day face-to-face preoperative nursing assessment.
- Offer same day consultant anaesthetic review when required.
- Build capacity and expertise to deliver same day assessment, including within UIU workforce. Procure equipment for UIU based investigations when required.

Rationale

Around 23,000 patients are diagnosed with a new bladder cancer in the UK annually, most of whom require preoperative assessment before a bladder tumour resection. Currently only 20% of hospitals have a same-day preoperative assessment policy for bladder tumour resection. Same day pre-op assessment avoids additional patient travel and is generally preferred by patients.



Benefits

Emissions reduction

3.4 kg CO_2e per case

606 tonnes CO_2e per average unit annually

62 tonnes CO_2e across England annually

Patients

Faster management

Less time visiting hospital

Fewer costs

Health service

Faster pathway performance

7. Maximising day-case bladder tumour resection rates

Actions

- List for and perform day-case TURBT by default unless contra-indicated.
- Indicate eligibility for day-case TURBT in the flexible cystoscopy procedure note, and include tumour location, number and size.
- Counsel patients at the time of diagnosis that TURBT is usually day-case.
- Patient information leaflets should describe the day-case first approach.
- Pre-operative assessment staff should inform patients of the need for postoperative supervision and transport arrangements.
- Perform timetabled subspecialist bladder scheduling meetings (BSM) to ensure optimal day-case delivery.
- Before the day of surgery contact patients to verify day-case preparation.
- Give Mitomycin C in theatres immediately after surgery.
- Deliver a protocolised discharge after TURBT by day-case trained nursing staff.
- Advise patients to have simple analgesia at home for after surgery to expedite discharge.
- Provide patients with direct access telephone service, to mitigate and facilitate readmission under urology where necessary.

Rationale

Top performing trusts safely deliver around 80% of TURBTs as day-case. This involves leadership, clear pathways, and a culture of healthcare professional empowerment. Successful day-case pathway implementation avoids the resource intensive inpatient setting, where recovery is slower, and patients are often subjected to needless tests and monitoring. The GIRFT Bladder Cancer guidance and GIRFT/BADS day surgery delivery pack provide additional advice on optimising day-case TURBT rates. Units can monitor their day-case rates using Model Hospital.

Benefits

Emissions reduction

38.2 kg CO_2e per case

3.0 tonnes CO_2e per average unit annually

378 tonnes CO_2e across England annually

Patients

Recovery at home

Faster recovery

De-medicalised care

Reduced hospital pathogen exposure

Health service

Greater inpatient beds

Lower cost per case

8. Optimising anaesthesia for bladder tumour resection

Actions

- Assign dedicated subspecialty urologists and anaesthetists to TURBT lists.
- Develop a protocol for low carbon TURBT anaesthesia based on the principles below.
- Use intravenous crystalloid infusion only if needed (e.g. dehydration, blood loss).
- Consider performing spinal anaesthesia as default.
- **For spinal anaesthesia:**
  - Discuss plans for spinal anaesthesia with patients at the earliest opportunity.
  - Use short acting spinal (SAS) agents, e.g. prilocaine.
  - Avoid routine supplementary oxygen.
  - Avoid routine supplementary infusion-delivered sedation.
- **If using general anaesthesia:**
  - Total intravenous anaesthesia (TIVA) using target-controlled infusion propofol is recommended.
  - If using inhalation anaesthesia, use sevoflurane with a low fresh gas flow rate.
  - Avoid desflurane and nitrous oxide.
  - Use reusable airway equipment (endotracheal tube or laryngeal mask airway).

Rationale

SAS have the lowest carbon emissions and promote day-case delivery. Preoperatively documenting tumour location and size helps to plan for a possible spinal anaesthetic, and patients with larger tumours can have higher SAS doses. Music or conversations can reduce anxiety and avoid the need for a sedation infusion for patients having a spinal anaesthetic. General anaesthesia with paralysis might be preferred for tumours near the obturator nerve.

Benefits

Emissions reduction (assumes 60% spinal, 40% TIVA)

3.8 kg CO_2e per average case

685 kg CO_2e per average unit

88 tonnes CO_2e across England

Patients

Spinal avoids GA side effects and overnight supervision requirements.

Health service

Lower cost per case

Possibly higher day-case rate with spinal

9. Decarbonising the bladder tumour resection surgical field

Actions

- Use reusable sterile theatre gowns.
- Consolidate the cystoscope onto the resectoscope set to reduce reprocessing emissions.
- Only open equipment when identified as being necessary, as part of an agreed intra-operative waste reduction strategy, for example:
  - Diathermy loop electrode and anvil/ball electrode
  - Biopsy forceps
  - Ellik evacuator
  - Urethral catheter and catheter bag
  - Mitomycin C
- Use one absorbent pad per patient for moisture.
- Use trilaminate membrane reusable surgical field drapes.
- Use irrigation sparingly, whilst safely and expediently completing the operation.
- Avoid disposable suction liners for large TURBT cases.
- Avoid routine post-operative catheterisation
- Use gloves for patient transfers only when there is visible contamination

Rationale

There are many opportunities to incrementally reduce operative carbon emissions. The largest opportunities of those outlined above are by opting for reusable drapes and gowns. A methodology for rationalising surgical tray sets to reduce the space occupied in decontaminators and autoclaves has been demonstrated. Irrigation extraction methods that dispose of waste irrigation along with standard wastewater have lower associated emissions, especially for large irrigation volumes.

Benefits

Emissions reduction

9.3 kg CO_2e per case

1.7 tonnes CO_2e per average unit annually

214 tonnes CO_2e across England annually

Patients

Avoidance of unnecessary catheterisation

Health service

Reduced cost per case

Reduced sterilisation unit demand

Improved supply chain resilience with reusable products

10. Offering biopsy and ablation at check flexible cystoscopy

Actions

- Have biopsy and ablation equipment available at all check cystoscopy lists to treat selected recurrences.
- Use the following recommended selection criteria for flexible cystoscopy and ablation:
  - Recurrent bladder tumour
  - Previously characterised low grade (G1-G2 low) pTa transitional cell carcinoma of the bladder only
  - Macroscopic appearance in keeping with a further small low grade pTa recurrence
  - No prior higher grade or stage disease identified, including CIS.
- Train check cystoscopy practitioners in case selection and ablation technique, and train cystoscopy assistants in equipment deployment to avoid list delays.
- If using transurethral LASER ablation (TULA), ensure appropriate LASER-proofing of rooms and provide staff LASER training and protective eyewear.
- Use business cases to support ablation equipment procurement, recognising reduced repeat visits for treatment.
- Have an agreed departmental policy for flexible cystoscopy and ablation which is communicated to all relevant staff.
- Implement a timetabled bladder scheduling meeting (BSM) that ensures patients are treated in the right setting by appropriately trained individuals.

Rationale

Key to reducing carbon footprint is having a functioning bladder cancer pathway that ensures patients are treated in the right setting. Flexible cystoscopy with biopsy and diathermy or laser ablation (TULA) are safe for selected cases of bladder cancer recurrence and offer improved patient experience. Only 20% of units have access to ablative equipment during check cystoscopy. Treatment when recurrences are identified avoids additional travel and procedures.

Benefits

Emissions reduction

16 kg CO_2e per avoided flexible cystoscopy, 113kgCO2 for rigid cystoscopy

2.3 tonnes CO_2e per average unit annually

298 tonnes CO_2e across England annually

Patients

Local anaesthetic treatment

Anticoagulation can continue (TULA)

Reduced cost

Fewer side effects

Fewer hospital visits

Health service

Improved theatre availability

Shorter wait to treatment

11. Delivering an enhanced recovery after cystectomy protocol

Actions

- Agree a local Enhanced Recovery After Surgery (ERAS) protocol for cystectomy which is accessible to all staff involved in the care of patients undergoing cystectomy.
- Ensure regular training and updates about ERAS for all members of the clinical team.
- Fundamentals of all ERAS protocols should include Drinking, Eating and Mobilising (DrEaMing) at the earliest safe opportunity.
- Inform patients about the ERAS process early and provide necessary preoperative education and support, including peer support groups.
- Monitor length of stay and unplanned readmissions after cystectomy using the Model Hospital system.

Rationale

Enhanced recovery after surgery (ERAS) protocols reduce length of hospital stay and increase the rate of recovery, which reduces healthcare resource use. ERAS elements begin before surgery and end after patient discharge from hospital following surgery. They have a particular role in major surgery such as cystectomy. Successful delivery requires clear and consistent consensus-based ERAS protocols within hospitals, with uniformly high staff understanding about their role in delivering enhanced recovery.

Benefits

<u>Emissions reduction</u>

38.2 kg CO_2e per reduced bed day

1.2 tonnes CO_2e per average unit annually

52 tonnes CO_2e across England annually

<u>Patients</u>

Faster recovery

Confidence and empowerment

De-medicalised recovery

<u>Health service</u>

Improved inpatient bed availability

Reduced cost

12. Delivering hypofractionated radical radiotherapy

Actions

- Offer hypofractionated radiotherapy (55Gy in 20 fractions) instead of the previous standard of care regiment (64Gy in 32 fractions) for appropriately selected patients with non-metastatic muscle invasive bladder cancer (T2-4aN0M0).

Rationale

Hypofractionated radiotherapy involves fewer hospital visits leading to lower travel-related emissions. It also allows more patients to be treated in a given time per linear accelerator, offering better use of this expensive and carbon-intensive capital equipment.
Hypofractionated radiotherapy has been shown to be an oncologically non-inferior treatment for muscle invasive bladder cancer compared with the prior standard regimen.

Benefits

Emissions reduction

317 kg CO_2e per case

13 tonnes CO_2e across England annually

Patients

Fewer hospital visits

Reduced cost

Fewer side-effects during treatment

Health service

Increased radiotherapy capacity

Reduced cost

Key actions to address health inequalities

People from lower socioeconomic backgrounds, minority and vulnerable groups, and those with lower levels of education or disabilities, often experience worse health outcomes. These are exacerbated by greater difficulty accessing and navigating health services. Some of the recommendations in this guide present an opportunity to reduce disparities in healthcare access. However, to reduce the risk of worsening health inequalities, flexibility and judgement should be exercised when delivering these recommendations in certain contexts.

Advice and guidance (A&G): This potentially reduces inequalities by facilitating care in the community. It might reduce the number of hospital visits required and the risk of “did not attends” (DNAs), which are commoner in some disadvantaged groups. Care should be taken that A&G does not generate delays in care delivery, but supports GPs to offer timely care in the community or via onwards referral. Fully staffed regular A&G rotas will support this.

One-stop and same-day services: These can promote equity by reducing the likelihood of people dropping out of clinical pathways and are often better for those balancing many responsibilities at home or work. Nevertheless, navigating multiple appointments during one visit might be confusing, particularly for the 4 in 10 adults who struggle to understand health information given to them. Extra time and support should be offered for these patients, so they know what to expect and how to navigate their visit.

Potential negative impacts could arise if one-stop clinics or Urology Investigation Units are moved to sites less easily accessible to disadvantaged groups. Teams should consider who might be impacted by this and consider using funded patient transport schemes.

Patient initiated follow up (PIFU) for persistent symptoms: This can avoid unnecessary hospital visits for many patients. However, those with poorer health literacy and challenging social circumstances are less likely to engage with PIFU, potentially amplifying inequalities. For those felt less likely to engage via PIFU, proactive hospital-led telephone follow-up to reassess symptoms is advised.

Day-case surgery: Additional safety netting might be necessary for patients who do not have a social network for support after discharge. Proactive telephone contact could be suitable for some patients rather than simply providing a direct access phone number. Whilst having pre-purchased analgesia at home can facilitate faster hospital discharge, nursing staff should ensure that patients have an adequate supply to avoid unmanaged pain at home.

Enhanced recovery after surgery (ERAS): Faster recovery from major surgery is advantageous. To ensure all can benefit from this, resources for patients on ERAS pathways should be designed flexibly to accommodate varying health literacy and different languages. Use of images can reduce heavy blocks of text to facilitate understanding.

Implementation checklist for hospital use

Recommendation	Not addressed	Partially achieved	Fully achieved
Primary care interface			
Using advice and guidance to optimise secondary care referrals			
Diagnosis			
Delivering one-stop haematuria assessment			
Decarbonising the flexible cystoscopy procedure [*]			
Performing flexible cystoscopy in a clinic setting			
Avoiding overuse of CT urogram for haematuria assessment			
Delivering same day preoperative assessment			
Bladder tumour resection			
Maximising day-case bladder tumour resection rates [*]			
Optimising anaesthesia for bladder tumour resection [*]			
Decarbonising the bladder tumour resection surgical field [*]			
Offering biopsy and ablation at check flexible cystoscopy			
Radical treatment			
Delivering an enhanced recovery after cystectomy protocol			
Delivering hypofractionated radical radiotherapy			

[*] = Multi-component Carbon Reduction Action Set

Stakeholder implementation log

Action statuses: ☑ = Complete; NA = Not applicable

Recommendation	Personnel	Action	Status
1. Using advice and guidance to optimise secondary care referrals	GPs, urologists	Use NHS e-RS for A&G	
		Use A&G templates	
	Managers	Allocate clinician time for A&G	
		Arrange A&G training	
2. Delivering one-stop haematuria assessment	Radiology clinical lead, managers	Arrange US before cystoscopy Train more sonographers	
	Finance, managers	New equipment for capacity	
3. Decarbonising the flexible cystoscopy procedure	Senior nurses	Training in sustainable cystoscopy Rationalise item availability	
	Procurement	Modify procurement	
4. Performing flexible cystoscopy in a clinic setting	Executives, managers	Review site capacity	
		Consider establishing UIU	
5. Avoiding overuse of CT urogram for haematuria assessment	Urologists	Use risk stratification	
	Urologists, managers, administrators	Facilitate PIFU	
6. Delivering same day preoperative assessment	Senior nurses, managers	Build same-day POA capacity	
		Equipment availability	
	Urologists, POA nurses	ASA 1-2 triage	
	Anaesthetic clinical lead, managers	Same-day anaesthetists	
7. Maximising day-case bladder tumour resection rates	Senior nurses	Train in day-case nursing	
	Urologists	Day-case by default	
	Urologists, managers	Bladder scheduling meetings	
		Monitor Model Hospital metrics	
		Modify information leaflets	
8. Optimising anaesthesia for bladder tumour resection	Anaesthetic clinical lead, urologists	Low-CO_2 anaesthetic protocol	
		Sub-specialty interest	
	Anaesthetic clinical lead, HSDU, procurement	Reusable airway equipment	
9. Decarbonising the bladder tumour resection surgical field	Urologists, scrub nurses	Minimal waste protocol	
	Urologists, HSDU manager	Consolidate tray sets	
	Senior nurses, procurement	Reusable gowns & drapes	
		Non-suction liner options	
10. Offering biopsy and ablation at check flexible cystoscopy	Urologists	Practitioner training	
	Senior nurses	Train in equipment deployment	
	Procurement	Equipment availability	
	Facilities	LASER proofing	
	Managers, urologists, nurses	LASER safety training/equipm.	
11. Delivering an enhanced recovery after cystectomy protocol	Urologists, anaesthetic clinical lead, senior nurses	ERAS protocol	
	Urologists, POA nurses	Early information on ERAS	
	CNS, patients	Peer support groups	
12. Delivering hypofractionated radical radiotherapy	Clinical oncologists	Adoption of hypofractionated	

Additional information

Bladder cancer and relevant urology guidance

Document	Author
Towards better care of patients with bladder cancer	GIRFT
Urology: GIRFT programme national specialty report	GIRFT
Guidance on muscle-invasive and metastatic bladder cancer	EAU
Guidance on non-muscle invasive bladder cancer	EAU
Bladder cancer: diagnosis and management [NG2]	NICE
Urology Investigation Units (UIUs)	GIRFT
IDENTIFY risk calculator	BURST
Clinically-led urology outpatient guidance	GIRFT
Bladder cancer – RCR consensus statements	RCR
Urology advice and guidance templates	GIRFT
Patient initiated follow up (PIFU) template pathways	GIRFT

Relevant additional clinical guidance

Document	Author
Clinically-led specialty outpatient guidance	GIRFT
Model Hospital dashboard	Model Health System
National day surgery delivery pack	GIRFT, BADS, CPOC

Patient-centred care and shared decision making

Document	Author
National cancer patient experience survey	Picker
Fight Bladder Cancer website	Fight Bladder Cancer
Action Bladder Cancer website	Action Bladder Cancer
The Urology Foundation website	The Urology Foundation

Sustainable healthcare resources

Document	Author
Delivering a net zero NHS	Greener NHS
Green surgery report	BSMS, CSH, UKHACC
Green theatres checklist	Intercollegiate Royal College of Surgeons
Surgical instrument set rationalisation	NHS England, AHSN North West Coast
Greener NHS knowledge hub	Greener NHS
Sustainability how to guides	Greener NHS

Glossary

Organisations / groups

APOM	Anaesthesia and perioperative medicine
BADS	British Association of Day Surgery
BAUN	British Association of Urological Nurses
BAUS	British Association of Urological Surgeons
BSMS	Brighton and Sussex Medical School
BSoT	BAUS Section of Trainees
CPOC	Centre for Perioperative Care
CSH	Centre for Sustainable Healthcare
EAU	European Association of Urologists
FBC	Fight Bladder Cancer
GIRFT	Getting It Right First Time
NICE	National Institute of Health and Care Excellence
RCR	Royal College of Radiologists
RCSEng	Royal College of Surgeons of England
UKHACC	UK Health Alliance on Climate Change

Definitions

Where emission reductions are described in ‘tonnes CO2e per average unit annually’, an average unit means a unit that is an average size and with average performance relative to defined optimal practice.

Acronyms / abbreviations

A&G	Advice and guidance
ASA	American Society of Anaesthesiologists
CIS	Carcinoma-in-situ
CO_2e	Carbon dioxide equivalent emissions
CRAS	Carbon Reduction Action Set
CT	Computed tomography
CTU	CT urogram
ECG	Electrocardiogram
ELLA	Environmental Lessons Learned and Applied
ERAS	Enhanced recovery after surgery
G1-2	Cancer grade 1-2
GHG	Greenhouse gas
Gy	Grays
LASER	Light amplification by stimulated emission of radiation
MDT	Multidisciplinary team
MMC	Mitomycin C
PIFU	Patient initiated follow up
pTa	Pathological cancer stage Ta
SAS	Short acting spinal anaesthetic
t CO_2e	Tonnes of CO_2e
TIVA	Total intravenous anaesthesia
TULA	Transurethral LASER ablation
TURBT	Transurethral resection of bladder tumour
UIU	Urology investigation unit
UTUC	Upper tract urothelial cancer

Contributors

Clinical reference group

Joseph John	GIRFT ELLA co-lead and national fellow. Urology registrar, Royal Devon University NHS Foundation Trust. University of Exeter Medical School
John McGrath	GIRFT ELLA co-lead and urology co-lead. Consultant urologist, North Bristol NHS Trust. University of Bristol
Kieran O'Flynn	GIRFT urology co-lead. Consultant urologist, Northern Care Alliance NHS Foundation Trust
William Gray	GIRFT academic content lead
Vishwanath Hanchanale	BAUS section of oncology representative. Consultant urologist, Royal Liverpool University Hospital
Emma Chappel	British Association of Urological Nurses (BAUN) Vice President. Urologt clinical nurse specialist, Southend University Hospital NHS Foundation Trust
Bushra Abdelqader	BAUS Section of Trainees (BSoT) vice president, BAUS audit steering group representative. Urology registrar
Joellene Mitchell	British Association of Day Surgery (BADS) representative. Consultant anaesthetist, University Hospital Ayr
Mohini Varughese	Consultant clinical oncologist, Royal Devon University Healthcare NHS Foundation Trust
Andrew Stevenson	RCSEng, co-chair of sustainability in surgery group. Consultant orthopaedic surgeon, Somerset NHS Foundation Trust
Chris Snowden	GIRFT Anaesthesia and Perioperative Medicine (APOM) co-lead. Consultant anaesthetist, Newcastle Upon Tyne Hospitals NHS Foundation Trust
Dominic Hodgson	Consultant urologist, Portsmouth Hospitals University NHS Trust
Ben Ayres	Consultant urologist, St George's University Hospital NHS Foundation Trust
Sinan Khadhouri	BURST research collaborative co-chair. Urology registrar NHS Scotland.
Edward Nickell	Senior Content Lead, GIRFT

Scientific reference group

Manraj Phull	Senior manager, Greener NHS
Maria Van-Hove	Greener NHS fellow
Chantelle Rizan	Associate Professor, National University of Singapore
Forbes McGain	Associate Professor, University of Melbourne, Australia. Consultant anaesthetist, Western Health
Robert Chuter	Principle clinical scientist, The Christie NHS Foundation Trust
William Gray	GIRFT academic content lead
Sarah Sheard	Consultant radiologist, Imperial College Healthcare NHS Trust
Kristin Konnyu	Lecturer in evidence synthesis and implementation science, University of Aberdeen
John Ford	Senior Clinical Lecturer in Health Equity, Queen Mary University of London

Patient reference group

Melanie Costin	Director of Patient Engagement & Support, Fight Bladder Cancer
Margaret Millgate	Patient and public representative
Pete Biernis	Patient and public representative
Anne	Patient and public representative
Stewart Crow	Patient and public representative