

Transurethral laser ablation for recurrent non- muscle-invasive bladder cancer

HealthTech guidance
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www.nice.org.uk/guidance/htg522

Your responsibility

This guidance represents the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take this guidance fully into account, and specifically any special arrangements relating to the introduction of new interventional procedures. The guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the [Yellow Card Scheme](#).

Commissioners and/or providers have a responsibility to implement the guidance, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties. Providers should ensure that governance structures are in place to review, authorise and monitor the introduction of new devices and procedures.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should [assess and reduce the environmental impact of implementing NICE recommendations wherever possible](#).

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This guidance replaces IPG656.

1 Recommendations

- 1.1 The evidence on the safety of transurethral laser ablation for recurrent non-muscle-invasive bladder cancer shows that there are no major safety concerns. However, current evidence on its efficacy is limited in quality and quantity. Therefore, this procedure should only be used with special arrangements for clinical governance, consent, and audit or research. Find out what special arrangements mean on the NICE guidance page.
- 1.2 Clinicians wishing to do transurethral laser ablation for recurrent non-muscle-invasive bladder cancer should:
 - Inform the clinical governance leads in their NHS trusts.
 - Ensure that patients and their carers understand the uncertainty about the procedure's safety and efficacy, and provide them with clear written information to support shared decision making. In addition, the use of NICE's information for the public is recommended.
 - Audit and review clinical outcomes of all patients having transurethral laser ablation for recurrent non-muscle-invasive bladder cancer. NICE has identified relevant audit criteria and has developed an audit tool (which is for use at local discretion).
- 1.3 Patient selection should be done by a specialist bladder cancer multidisciplinary team.
- 1.4 NICE encourages further research and prospective data collection into transurethral laser ablation for recurrent non-muscle-invasive bladder cancer. Studies should investigate patient selection, types of laser used, tumour recurrence and long-term follow up.

2 The condition, current treatments and procedure

The condition

2.1 The most common form of bladder cancer is transitional cell carcinoma. Non-muscle-invasive transitional cell carcinoma is classified as stage Ta when it is confined to the uroepithelium and stage T1 when it has spread into the connective tissue layer between the urothelium and the muscle wall. Non-muscle-invasive transitional cell carcinomas usually appear as small growths from the bladder lining. They can be graded from G1 (low grade, least aggressive) to G3 (high grade, most aggressive). Carcinoma in situ consists of aggressive cancer cells that spread within the surface lining of the bladder and appear flat. It is more likely to recur after treatment.

Current treatments

2.2 NICE's guideline on bladder cancer describes its diagnosis and management. Surgical interventions for non-muscle-invasive transitional cell carcinoma include transurethral resection, in which malignant tissue is removed with an electrocautery device during cystoscopy. Bacillus Calmette–Guérin (BCG) vaccine or chemotherapy drugs may be put directly into the bladder, either as treatments in themselves or as adjuvant therapy after transurethral resection. Cystectomy may also be necessary in some patients.

The procedure

2.3 This procedure is most often used for very small, recurrent bladder tumours. It is usually done as day surgery using local anaesthesia. A flexible cystoscope is passed through the urethra into the bladder. The tumours are then ablated using a laser fibre contained in the cystoscope.

- 2.4 If there is a lot of bleeding after the procedure, a urinary catheter may be inserted to allow bladder irrigation.
- 2.5 Adjuvant intravesical chemotherapy may be offered after the procedure.
- 2.6 The aim is to destroy the tumour with less morbidity than is seen with conventional treatments. The suggested benefits over cystodiathermy include less bleeding and reduced pain.

3 Committee considerations

The evidence

- 3.1 To inform the committee, NICE did a rapid review of the published literature on the efficacy and safety of this procedure. This comprised a comprehensive literature search and detailed review of the evidence from 9 sources, which was discussed by the committee. The evidence included 6 case series, 2 non-randomised comparative studies and 1 case report, and is presented in table 2 of the overview. Other relevant literature is in the appendix of the overview.
- 3.2 The specialist advisers and the committee considered the key efficacy outcomes to be: patient-reported outcome measures, tumour ablation, reduction in tumour recurrence rates and survival.
- 3.3 The specialist advisers and the committee considered the key safety outcomes to be: bleeding, pain and bladder perforation.
- 3.4 Patient commentary was sought but none was received.

Committee comments

- 3.5 The committee was informed that this procedure is used in 2 distinct groups:
 - for people with small superficial tumours, when the intention is to completely ablate the tumour
 - for symptom control in people with more advanced disease who are unfit for, or unwilling to have, surgery.
- 3.6 The technology used in this procedure is evolving.
- 3.7 A chemical may be instilled into the bladder to aid with tumour detection, using a blue light.

3.8 The committee was informed that it may not always be necessary to stop anticoagulant or antiplatelet therapy before this procedure.

Update information

Minor changes since publication

January 2026: Interventional procedures guidance 656 has been migrated to HealthTech guidance 522. The recommendations and accompanying content remain unchanged.

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Endorsing organisation

This guidance has been endorsed by Healthcare Improvement Scotland.