



Extended Research Article

Clinical and cost-effectiveness of percutaneous nephrolithotomy, flexible ureterorenoscopy and extracorporeal shockwave lithotripsy for lower pole stones: the PUrE RCTs

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Plain language summary

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Plain language summary

About 10% of people will suffer from kidney stones in their lifetime. Approximately 50% of those people will experience symptoms, typically kidney pain, and about 25% of patients with stones will require active treatment. Active treatments include shockwave therapy, telescopic surgery and keyhole surgery. Stones commonly develop in the lower part (pole) of the kidney.

Previous studies suggested that for lower pole stones:

- and stones smaller than 10 mm in size, telescopic surgery is more likely to remove the stone with a single treatment
- and for larger stones, which are > 10 mm but smaller than 25 mm, keyhole surgery is more likely to remove the stone with a single treatment.

Remarkably little evidence was available on the impact of these treatments on quality of life for patients.

What did PUrE do?

We assessed the effect on the participants' health, and the economic impact to the National Health Service, of the different care pathways by conducting 2 studies involving over 600 patients with lower pole stones.

- The first study (smaller stones) compared telescopic surgery with shockwave therapy.
- The second study (larger stones) compared telescopic surgery with keyhole surgery.

A computer program (random allocation) decided which treatment each person received. The patients, and the doctors caring for them, proceeded with the agreed treatment. All patients were requested to fill in quality-of-life questionnaires on a regular basis.

What did PUrE find?

We found that for shockwave therapy and keyhole surgery, improvement in participants' health status was similar to telescopic surgery. Telescopic surgery was less cost-effective for the National Health Service in both studies.

What does this mean?

These studies show that, based on cost and health status, shockwave therapy and keyhole surgery are the first choice for active treatment in the National Health Service.

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This article

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