

Robot-assisted surgery for hysterectomy or sacrocolpopexy

NICE has developed the Cochrane Quality and Productivity topics to help the NHS identify practices that could be significantly reduced or stopped completely, releasing cash and/or resources without negatively affecting the quality of NHS care. Each topic has been derived from a Cochrane systematic review that has concluded that the evidence shows that the practice is harmful or ineffective and should not be used, or that there is insufficient evidence to support widespread use of the practice.

Unless otherwise stated, the information is taken with permission from the Cochrane systematic review.

NICE summary of Cochrane review conclusions

Robot-assisted surgery (RAS) for hysterectomy or sacrocolpopexy should be limited to clinical research settings at present as it is unclear whether it is safer and more effective than conventional laparoscopic surgery (CLS). Ongoing trials are likely to have an important impact on evidence related to the use of robot-assisted surgery in gynaecology.

The 'Implications for practice' section of the Cochrane review stated:

'We are uncertain as to whether RAS or CLS, when used for hysterectomy and sacrocolpopexy, has lower intraoperative and postoperative complication rates due to imprecision of the effect and inconsistency. We found no evidence on the relative effects of RAS compared with CLS or open surgery for surgical procedures performed for gynaecological cancer; therefore RAS should be limited to use in clinical trials until more evidence on cancer survival and safety outcomes becomes available. Additional RCTs must be conducted before RAS can be recommended for widespread integration into existing budget-constrained gynaecological services. Other practical implications include the potential for underskilling surgical trainees and future surgeons in essential surgical skills; this should be carefully considered in the broader discussion around RAS.'

Details of Cochrane review

Cochrane review title

Robot-assisted surgery in gynaecology (Review)

Citation

[Liu H, Lawrie TA, Lu D, Song H, Wang L, Shi G. Robot-assisted surgery in gynaecology. Cochrane Database of Systematic Reviews 2014, Issue 12. Art. No.: CD011422. DOI: 10.1002/14651858.CD011422.](#)

When the review content was assessed as up to date

12 September 2014

Quality and productivity category

Right care

Cochrane Quality and Productivity topics

Relevant codes	OPCS	ICD10	HRG
	Q07.1–7.9	C51–58	MB01–05
	P24.2	D06	
		D26–28	
		N80–98	

Programme budget:

Cancers and tumours, problems of the genito-urinary system, maternity and reproductive health.

Evidence

Relevance to the NHS

Laparoscopic surgery, a type of minimally invasive surgery, is widely used in gynaecology. Robot-assisted surgery (RAS) is a relatively new type of laparoscopic surgery. It allows the surgeon to operate from a computer console via remote-controlled mechanical arms attached to the surgical table. RAS is already used in several countries for gynaecological surgery, particularly for hysterectomy (removal of the uterus/womb). It is also used for a variety of procedures for both cancerous and non-cancerous conditions. For non-cancerous conditions this includes myomectomy (removal of uterine fibroids), tubal reanastomosis (joining 2 ends of a fallopian tube to restore fertility) and sacrocolpopexy (to repair vaginal vault prolapse, when the uppermost part of the vagina slips downwards). For cancerous conditions it is used for treatment of women with endometrial and cervical cancers. However, the benefits and risks of RAS versus standard surgical approaches have not been clearly established. The Cochrane review aimed to investigate these issues.

Six randomised controlled trials involving a total of 517 women were included in the Cochrane review. Five had a low to moderate overall risk of bias and 1 had a high risk of bias. Four studies evaluated RAS for hysterectomy (total 371 women), and 2 studies evaluated RAS for sacrocolpopexy (total 146 women). Five studies compared RAS with conventional laparoscopic surgery (CLS). One study compared RAS with CLS or a vaginal surgical approach for hysterectomy.

There was no significant difference in the risk of intraoperative or postoperative complications for patients undergoing CLS or RAS [risk ratio (RR) 0.95, 95% confidence interval (CI) 0.46 to 1.99; participants = 513; studies = 6; $I^2 = 74\%$]. This was also true for both hysterectomy and sacrocolpopexy when analysed separately. The mean total operating time was about 42 minutes longer for RAS compared to CLS (Mean difference 41.71; 95%CI 17 to 66 minutes; participants = 294; studies = 4; $I^2 = 82\%$; moderate-quality evidence). Mean hospital stay for hysterectomy procedures was on average about 7 hours shorter for RAS than for CLS (MD -0.30 days, 95% CI -0.54 to -0.06; participants = 217; studies = 2; $I^2 = 0\%$; low-quality evidence). For patients undergoing sacrocolpopexy there was no significant difference in length of stay between RAS and CLS. There was no significant difference in post-operative pain or quality of life between patients undergoing RAS or CLS, for either hysterectomy or sacrocolpopexy.

Overall it is uncertain if RAS or CLS has a lower risk of intraoperative and postoperative complications. Moderate-quality evidence suggests that procedures take longer with RAS but may be associated with a shorter hospital stay following hysterectomy. There is limited evidence on the effectiveness and safety of RAS compared with CLS or open surgery for surgical procedures performed for gynaecological cancer; therefore its use in gynaecological cancer should be limited to clinical trials. Further research is needed and ongoing trials are likely to have

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an important impact on evidence related to the use of RAS in gynaecology.

Relevant NICE guidance and products

[Laparoscopic hysterectomy \(including laparoscopic total hysterectomy and laparoscopically assisted vaginal hysterectomy\) for endometrial cancer \(IPG356\)](#)

September 2010

[Laparoscopic techniques for hysterectomy \(IPG239\)](#)

November 2007

[Laparoscopic radical hysterectomy for early stage cervical cancer \(IPG338\)](#)

May 2010

Other accredited guidance and products

Royal College of Obstetricians and Gynaecologists: [Laparoscopic Injuries \(Green-top Guideline No. 49\)](#)

May 2008

Faculty of Sexual and Reproductive Healthcare: [CEU Guidance - Male and Female Sterilisation](#)

September 2014

Potential productivity savings

Estimate of current NHS use

- In 2013/14 approximately 41,000 (Health and Social Care Information Centre, 2015) surgical procedures for gynaecological diseases involving sacrocolpopexy and hysterectomy were carried out in the NHS. It is not known how many of these procedures were robot assisted.

Level of productivity savings anticipated

- RAS takes more time in theatre, so stopping the use of RAS may provide productivity savings due to the shorter time in theatre per patient.

Type of saving

- By not using RAS, time in theatre may be freed up, but this may be offset by the longer length of hospital stay associated with using CLS.
- The cost in consumables is higher for RAS. Where RAS is already in use, any consumables could be reallocated to other conditions where the evidence supports the effectiveness of RAS.
- The capital cost of RAS equipment is high. Trusts will avoid significant up-front costs if they do not purchase it.

Any costs needed to achieve the savings

- No additional resources required to stop doing RAS.
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Other information

- Any savings or costs avoided are likely to benefit NHS provider trusts.
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Potential impact on quality of NHS care

Impact on clinical quality

Not anticipated to have any impact on clinical quality as no firm evidence is available around the relative risks of RAS and CLS.

Impact on patient safety

Not anticipated to have any impact on safety as no firm evidence is available around the relative risks of RAS and CLS.

Impact on patient and carer experience

Not anticipated to have any impact on the patient and carer experience as there are no significant differences between RAS and CLS in post-operative pain or quality of life.

Likely ease of implementation

Time taken to implement

Can be achieved quickly (0-3 months) as implementation simply involves not purchasing RAS equipment and continuing with CLS.

Healthcare sectors affected

Affects the surgical team or department. Patient care is not altered but those caring for patients with gynaecological conditions may wish to be informed as to the preferred surgical methods, as patients may wish to know.

Stakeholder support

Likely to be supported by key influencers.

References

[The Health and Social Care Information Centre](#) (2015). Hospital Episode Statistics, Admitted Patient Care, England - 2013-14 [NS]