

## ENGLISH SUMMARY

ANNA-MAIJA TAPPER  
MIKKO HANNOLA  
RAINER ZEITLIN  
JAANA ISOJÄRVI  
HARRI SINTONEN

TUIJA S. IKONEN  
Senior Medical Officer  
National Institute for Health and  
Welfare (THL)  
E-mail: tuija.ikonen@thl.fi

ENGLISH REVISION BY  
MARK PHILLIPS, THL



# Robotic assisted hysterectomy: advantages, disadvantages and costs

Robot-assisted surgery has been considered a safe new technology that provides improved healing results and faster hospital discharge than conventional methods. High costs are a major disadvantage of robotic surgery.

In this systematic literature review, the short-term results and the safety of robotic assisted hysterectomy as a treatment for benign or malign diseases were assessed together with a cost analysis and literature review of economic analyses. Open hysterectomy, traditional laparoscopic hysterectomy and vaginal hysterectomy in the case of benign conditions were comparators for selected clinical outcome measures and costs.

In the literature search, which was updated on January 2012, no randomized trials were detected. The original search produced 406 effectiveness and 208 cost analysis abstracts, and the update a further 84 abstracts. Altogether five health technology assessment reports were identified, one Cochrane review concerning robotic surgery for malignant diseases and one Cochrane protocol of robotic surgery in benign diseases. In addition nine systematic reviews or meta-analyses about effectiveness or economic analyses were ordered. The results of the HTA-reports and systematic reviews were complemented by 12 recent original research reports. The studies were typically retrospective analyses of patient series. Usually the comparisons were made for malignant conditions.

According to the literature, compared to laparotomy the advantages of robotic surgery were those of a mini invasive method: less bleeding, a smaller number of postoperative complications and shorter hospital stay.

When compared to laparoscopy, the use of robot assistance might have enhanced the learning curve associated with a smaller number of conversions, but the length of operation time was often longer. For the treatment of benign diseases vaginal hysterectomy was regarded as superior to other methods concerning clinical results and costs.

Under certain circumstances, for example when operating on obese patients, the safety of robotic surgery was considered superior to comparators. The number of removed lymph nodes was not significantly different between the methods. The level of evidence was low at best, and most results were clinically insignificant.

A cost analysis of hysterectomies was undertaken from the material of a Finnish university hospital that had introduced robotic surgery to gynaecology in 2009. The operations during the first year were excluded in order to avoid the learning curve effect. Thus, 662 hysterectomies performed between January 2010 and August 2011 were included. The number of robotic assisted surgeries was 112 (17%), of which 82% had lymphadenectomies.