



Title	Bibliography: Robotic Surgery — Update 2006
Agency	VATAP, VA Technology Assessment Program Office of Patient Care Services (iT), Room D4-142, 150 S. Huntington Avenue, Boston, MA 02130, USA; Tel: +1 857 364 4469, Fax: +1 857 364 6587; vatap@med.va.gov , www.va.gov/vatap
Reference	VA Technology Assessment Program Report. Bibliography: Robotic Surgery —Update 2006. www4.va.gov/VATAP/docs/RoboticSurgery2006ttm.pdf

Aim

To update the 2004 bibliography of FDA-approved robotic surgical devices and compare the use of these robotic-assisted surgical devices with existing surgical procedures.

Conclusions and results

Twenty-six articles met the inclusion criteria for this review: 4 health technology assessments (HTAs) and 22 primary articles. Thirteen indications for using robotic-assisted endoscopic procedures were identified, of which radical prostatectomy was the most widely studied. Small randomized controlled trials (RCTs) or pseudo-RCTs provided limited evidence on adrenalectomy, cholecystectomy, Nissen fundoplication, and gastric bypass. From these analyses, no clear advantages of robotically-assisted techniques versus either standard laparoscopic procedures or open procedures can be concluded. Limitations on clinical use are: high initial investment and operating costs; substantial training requirements; and lack of strong evidence from well-designed clinical trials that would help determine the effectiveness and cost effectiveness of robotic-assisted surgical devices compared to current practices.

Recommendations

Although the evidence does not confer clear advantages to using robotically assisted surgical procedures, Veterans Affairs (VA) may have other reasons to evaluate certain applications. These include the prevalence of disease or condition or the ability to address staffing shortages in the surgical theater in a safe and cost-effective manner. In this regard, the robotically assisted laparoscopic applications with the best evidence of offering safe and cost-effective alternatives to current practices for prevalent health conditions in VA are radical prostatectomy, Nissen fundoplication, and cholecystectomy.

Methods

The VA Technology Assessment Program searched the FDA databases, databases covering the FDA and

device industries (PROMT, Health Devices Alerts, DIOGENES, FDA News, ESPICOM), MEDLINE, EMBASE, Current Contents, Science Citation Index, and BIOSIS databases from 2002 through September 2006. The review included studies published in English that reported primary data with at least 12 consecutive, live, human subjects, or high-quality evidence reviews or HTAs.

Further research/reviews required

Additional monitoring of the literature is needed to identify new studies and evidence of effectiveness and cost effectiveness relative to current practices for robotically assisted devices.