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| <b>Title</b>     | Rapid Review of Robotic-Assisted Surgery for Urological, Cardiac, and Gynaecological Procedures   |
| <b>Agency</b>    | ASERNIP-S, Australian Safety and Efficacy Register of New Interventional Procedures – Surgical  |
| <b>Reference</b> | PO Box 553, Stepney SA 5069, Australia; Tel: +61 8 83637513, Fax: +61 8 83622077; <a href="mailto:asernips@surgeons.org">asernips@surgeons.org</a><br>Report number 75. ISBN 978-0-9806299-6-5.<br><a href="http://www.surgeons.org/Content/NavigationMenu/Research/ASERNIPS/ASERNIPSPublications/Rapid_Review_No_75.htm">www.surgeons.org/Content/NavigationMenu/Research/ASERNIPS/ASERNIPSPublications/Rapid_Review_No_75.htm</a> |

### Aim

To evaluate the safety and efficacy of robotic-assisted surgery compared to conventional surgery for common urological, cardiac, and gynecological procedures; and to summarize the experiences of Australian hospitals and surgeons using this technology and the views of jurisdictional health representatives and patient advocates.

### Conclusions and results

This review included 44 studies (1 systematic review, 43 nonrandomized comparative studies). Despite shortcomings in the published evidence, robotic-assisted surgery is emerging as an alternative to conventional open or laparoscopic approaches for a range of urological, cardiac, and gynecological procedures. In reviewing the relevant comparative evidence published in the past 5 years, it seems that robotic-assisted surgery is at least as efficacious as conventional open or laparoscopic surgery, and appears to offer the advantages of decreased blood loss and transfusions with resultant decreases in length of hospital stay without increasing the rate of severe complications. To date, operative times for robotic-assisted approaches have generally been equal to or longer than conventional approaches, although it is likely they have been influenced by the experience of the surgical team and are amenable to improvement with increased experience. These findings from the published literature seem to echo the experiences of the Australian surgeons using this technology who were interviewed for this report.

### Methods

Studies were identified by searching PubMed, EMBASE, the Cochrane Library, and the York (UK) Centre for Reviews and Dissemination (CRD) databases for studies published from January 1, 2004 to February 20, 2009. Studies considered eligible for critical appraisal and inclusion in the review were limited to English language systematic reviews of primary studies, randomized controlled trials (RCTs), and nonrandomized compara-

tive studies that reported on the use of robotic-assisted surgery for urological, cardiac, and gynecological procedures compared to conventional surgical approaches. Data on the main outcomes of interest were reported narratively. Interviews were conducted with 7 surgeons from 6 of the 7 Australian hospitals using the da Vinci Surgical System, and with a theatre nurse experienced in the set-up and maintenance of the system, 2 jurisdictional health representatives from one Australian state and one territory, and 2 representatives from patient advocacy organizations.

### Further research/reviews required

Many of the limitations in the published evidence used in this review would be overcome by the availability of concurrently-controlled trial evidence. While the undertaking of multicenter RCTs of robotic-assisted surgery is desirable, this may be difficult due to problems inherent in attempting to randomize patients who are actively seeking treatment with this technology, which at present is primarily available in private hospitals in Australia.