



Title Robot-Assisted Surgery: Health Technology Assessment
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Aim

To determine the clinical effectiveness and potential benefits of using robot-assisted surgical systems for minimally invasive surgery, using instruments remotely controlled by an operator in the same room (excluding telemedicine); and to explore indications, costs, and conditions for potential reimbursement in Belgium and legal, ethical, and patient issues associated with using these devices.

Conclusions and results

The system is expensive to acquire and use because of the necessary and expensive limited-use equipment. Currently over 20 robotic surgical systems are installed in Belgium. They are used mainly for prostatectomy, and many are not used to full capacity. Despite implicit or explicit claims that this technology is superior, for most indications its distinct advantages are currently unproven and highly dependent on surgical skills and professional experience. Because too many systems are scattered in different hospitals, resulting in underutilization, the required experience is difficult to acquire for many of the surgeons using these devices. Patients often must pay a nonreimbursable supplement for using this innovative technology, and they are not always fairly and clearly informed about the alternatives.

Recommendations

Surgeons should refrain from claiming superiority of this technique since the evidence does not support it. To enable surgeons to acquire the necessary skills, robot-assisted surgery should be performed only by surgical teams specialized in specific interventions using these tools. Since the absolute number of potential interventions is limited, the number of these specialized teams should also be limited. Specific registration of this surgery should be set up in Belgium. Patients should be fully informed in clear language about all options. Additional reimbursement of robot-assisted surgery is currently not recommended, and the out-of-pocket patient supplement that hospitals often charge to cover

part of the additional cost of using these devices cannot be justified since proof of additional benefit is absent.

Methods

Methods included systematic review of the evidence on clinical effectiveness and economic evaluations, hospital questionnaire, budgetary evaluation, legal evaluation, and evaluation of ethical and social patient issues through consulting a panel of ethicists.

Further research/reviews required

Further evidence from trials and observational research is required. There is a specific need to establish a registry of robot-assisted interventions performed by highly specialized surgical teams with a predefined analysis plan and collection of relevant patient characteristics, peri-operative data, and outcomes data, to allow for future reevaluation of this technique.