

Setting up a robotic surgery program

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INTRODUCTION

Robotic surgery has been widely incorporated into clinical practice in other countries prior to the availability of quality data. Industry figures show that the robotic surgical platform is taking off in Australia, mainly led by urological procedures, with promising increases in general surgical and gynaecological procedures in the past five years.¹

As robotic assisted surgery is becoming more prevalent in public hospitals around Australia, it is imperative for institutions considering implementation of such new technology to adopt efficient and effective methods to establish, monitor and evaluate their robotic surgery program (RSP).

OBJECTIVES

The objective of this study is to report our experience of establishment of a RSP at a tertiary public hospital and to review the literature for guidelines and best practice recommendations to identify the key elements for successful development of a RSP.

METHODS

A database search of publications using PubMed and Embase was conducted. We excluded conference abstracts, non-English language publications, and publications purely reporting on their clinical outcomes or results. Articles describing development or establishment of a RSP were reviewed. We report the development of our own RSP and highlight the essential elements required for development of such a program.

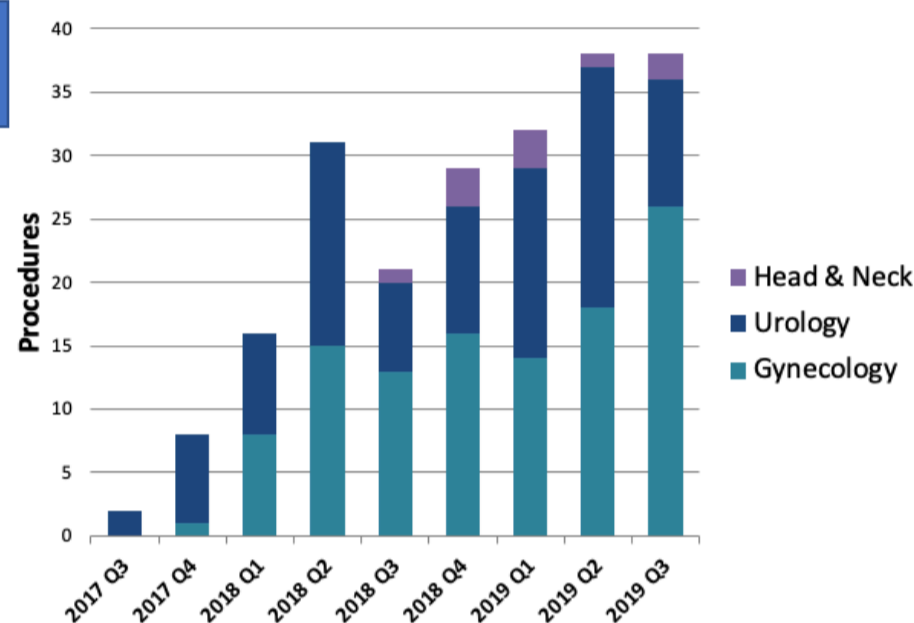


Figure 1. Number of robotic procedures performed at Liverpool Hospital per quarter.

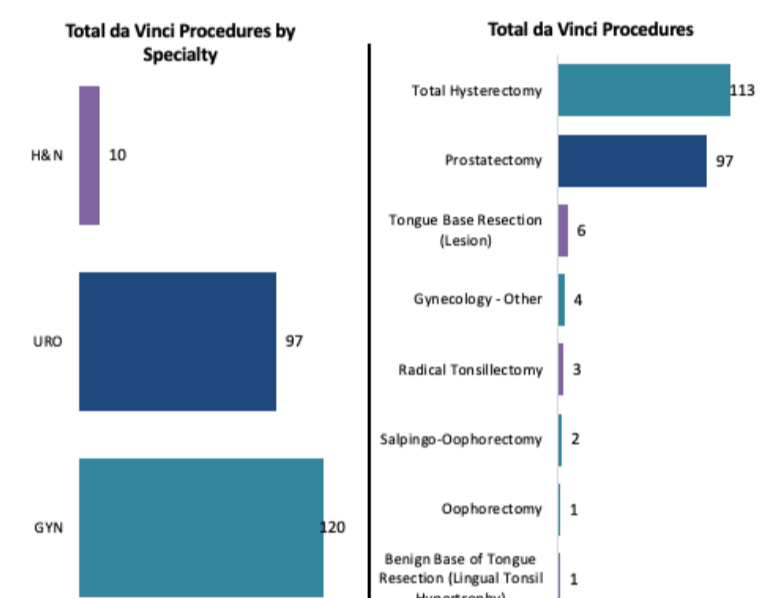


Figure 2. Number and types of robotic procedures by specialty.

RESULTS

Liverpool Hospital is a public tertiary teaching hospital in the Sydney Southwest Local Health District. Our RSP was founded in 2016. Its mission was to allow public patients to access the latest technology in surgery. After an initial cost analysis a dual console Da Vinci Xi Surgical Robotic System™ (Intuitive Surgical) was purchased with partial funds from private donations. A Robotic Steering Committee, directed by the Head of the Department of Surgery, was created. This team comprised of representatives from hospital Administration, nursing staff, and select surgeons who had interest in or were already performing robotic surgery in the private sector. Surgeons underwent a stringent credentialing process, including the requirements of having completed the training pathway developed by the manufacturers of the Da Vinci robot. A dedicated theatre team was selected and trained and a dedicated theatre with adequate space and audio-visual support was selected as the site of performance of all robotic surgeries at our centre.

The RSP commenced with urological cases from February 2017 followed by gynaecological oncology then head and neck cases. Data on outcomes and metrics is collected prospectively by each surgical specialty, audited and reported to the Robotic Steering Committee periodically. To date, there have been 227 robotic procedures performed at our hospital (Figure 1). There were less than 5 cases performed in the initial quarter, with rapid increase to 38 cases in the last two quarters. The majority of cases were performed by Gynaecology, followed by Urology, and the main procedures performed were hysterectomies and prostatectomies respectively (Figure 2). A recent audit showed that our robotic hysterectomies were comparable to total laparoscopic hysterectomies in terms of complications, conversion to laparotomy and length of stay, but had improved blood loss at the expense of longer operative times.²

There is limited information in the literature on guidelines and recommendations for setting up a RSP. Five articles were identified with recommendations for essential elements for development of a successful RSP with experiential reports; two from gynaecology,^{3,4} two from urology,^{5,6} and one from general surgery.⁷ Several desirable components were asserted: 1) establishment of goals and objectives, 2) formation of a leadership team and recruitment or appointment of lead surgeon, 3) prospective data collection, 4) credentialing, and 5) development of curricula for registrar and Fellow training. Several other articles reported their experience in starting a RSP, evaluated their outcomes, and briefly listed important elements of their RSP.⁸⁻¹¹

DISCUSSION

The short-term surgical outcomes of our RSP are encouraging. There are plans to review oncology cases and report long term functional and oncologic outcomes. We identified areas requiring improvement which we are now addressing: retainment of nursing staff trained in robotic surgical assisting, lack of standardisation of outcome measures recorded by each surgical specialty, and lack of patient satisfaction measures.

CONCLUSION

The existing literature recommends addressing certain key desirable components and prospective ongoing monitoring to help ensure a successful, productive and safe RSP. We discussed these components in the development of our RSP and identified areas for improvement. Consideration should be made to explore these components prior to establishing RSPs in other institutions.

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