

Is Fertility Surgery Dead?

Changes in the incidence and uptake of reproductive surgery versus *in vitro* fertilization in Australia between 2001 and 2015: a population-based study.

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Objectives

Improvements in success rates of assisted reproduction led to predictions that infertility surgery become extinct in developed countries.¹ We sought to identify the changes in reproductive surgery that occurred between 2001 to 2015 to determine whether these predictions were accurate.

Methods

Data were obtained from two mandated Australian national data collections for the period 2001 to 2015 inclusive.

Defining the 'reproductive age group,' we used 25 - 44 years inclusive for females and 25 - 55 years for males. Annual point estimates for the populations in question were obtained from the Australian Bureau of Statistics.²

From the Australian Institute of Health and Welfare national procedural dataset we procured data regarding *fallopian tube surgery, hysteroscopic, laparoscopic and open myomectomy, anastomosis of the vas deferens and epididymis, and varicocelectomy*. To quantify the uptake of IVF procedures we used the Australian MBS claims database, which was searched for MBS item number 13212 ('oocyte retrieval for the purposes of assisted reproductive technologies').³

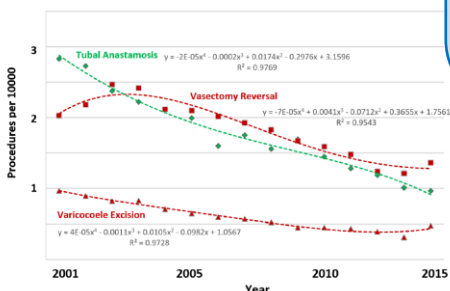


Figure 1 Age-stratified incidence rates (procedures per 10000) of fallopian tube anastomosis (◆) in women aged 25 to 44 years and vasectomy reversal (■) and varicocele excision (▲) in men aged 25 to 54 years for the period 2001 to 2015.

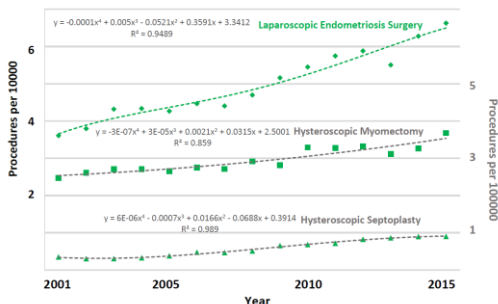


Figure 2 Age-stratified incidence rates (procedures per 10000 women aged 25 to 44 years) of laparoscopic surgery for levels 4 and 5 endometriosis (◆), and for hysteroscopic myomectomy (■) and septoplasty (▲) (procedures per 100000 women) for the period 2001 to 2015.

Results

Over the study period:

- The incidence of tubal surgery fell by 66%, vasectomy reversal by 33%, and surgical varicocelectomy by 50% (Figure 1).
- In contrast, the rate of hysteroscopic myomectomy increased by 48% and hysteroscopic septoplasty by 125%.
- Similarly, the rate of laparoscopy for severe endometriosis increased by 84%. (Figure 2)
- IVF oocyte retrievals increased over the study by 90%, however the significant change occurred only between 2000 and 2008, with no significant change from 2009 to 2015. (Figure 3)
- The overall rate of open and laparoscopic myomectomy remained stable (2.5/10,000/yr) although the contribution of both procedures changed over time.

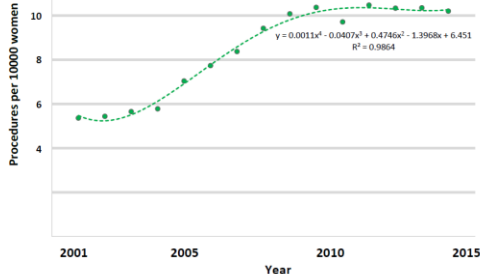


Figure 3 Age-stratified incidence rate of IVF oocyte retrieval procedures in women aged 25 to 44 years in Australia (procedures per 10000 women), 2001 to 2015.

Conclusion

At a national level, some reproductive surgical procedures in women and men – notably tubal and vas surgery – have become much less common. However, procedures such as the treatment of endometriosis and hysteroscopic procedures, have become more common. The landscape of fertility surgery has shifted significantly in the new millennium. Before the era of ART, tubal surgery was the only realistic option for fertility in a couple with tubal factor infertility and vasectomy reversal for men wishing additional pregnancy.

Our data support the evolution, rather than the death, of fertility surgery. Higher success rates and faster conception times with ART have seen the utility of tubal surgery for both male and female factor infertility decrease. This shift in practice could well lead to the extinction of these procedures as urologists and gynaecologist will not have sufficient surgical volume for training and skill maintenance. Conversely as the cohort of patients seeking fertility ages the number of procedures undertaken to assist them in spontaneous or assisted conception will continue to increase.

References:
1. Feinberg EC, Levens ED, DeCherney AH. Infertility surgery is dead: only the obituary remains? *Fertil Steril* 2008;89:232-6.
2. Australian Institute of Health and Welfare (AIHW) National Procedural Dataset. Version 4.0. Last updated 4 August 2017.
3. Australian Bureau of Statistics (ABS). Population. Australian Government. Last updated 24 April 2018.

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