



Use of lasers in obstetrics and gynaecology

Consensus statement of the Royal Australian & New Zealand College of Obstetricians & Gynaecologists (RANZCOG) and the Australian Gynaecological Endoscopy & Surgery Society (AGES)

This statement has been developed and reviewed by the Women's Health Committee and approved by the RANZCOG Board and Council.

A list of Women's Health Committee Members can be found in Appendix A.

Disclosure statements have been received from all members of this committee.

Disclaimer This information is intended to provide general advice to practitioners. This information should not be relied on as a substitute for proper assessment with respect to the particular circumstances of each case and the needs of any patient. This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. The document has been prepared having regard to general circumstances.

First endorsed by RANZCOG: July 2002
Current: November 2017
Review due: November 2020

Objectives: To provide advice on the use of lasers by RANZCOG Fellows and trainees.

Target audience: All health practitioners using lasers in obstetrics and gynaecology.

Background: This statement was first developed by Women's Health Committee in July 2002 to provide advice on the use of lasers.

Funding: The development and review of this statement was funded by RANZCOG.

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1. Patient summary

Lasers are used to treat gynaecological conditions such as genital warts, pre-cancerous conditions of the cervix, pelvic endometriosis, polycystic ovaries, and heavy menstrual bleeding. They are also used in obstetrics to help manage complications in twin pregnancies. Any person using laser must have undergone appropriate training, and should inform patients about the potential risks and benefits of laser treatment.

2. Summary of recommendations

Recommendation 1	Grade
The laser of choice for lower genital tract pre-cancer and condylomata is the Carbon Dioxide (CO2) laser.	Consensus-based recommendation
Recommendation 2	Grade
The laser of choice for twin-twin transfusion syndrome is either the Neodymium: YAG (Nd: YAG) or a Diode Pumped Solid State Laser (Diode Laser) with a wavelength of 400-600nm.	Consensus-based recommendation
Recommendation 3	Grade
<p>1. Those performing laser surgery must be familiar with the use of lasers in medical settings.</p> <ul style="list-style-type: none">) The physics, effects and safety aspects of lasers in surgery (an accredited biomedical engineer should guide this part of the course); and) The clinical aspects of lasers in gynaecology which should cover the application and techniques for using lasers in one or more of the settings outlined in the background. <p>2. The specialist should attend a number of theatre/outpatient sessions observing the use of laser in an operative setting.</p> <p>3. Where possible, invite a preceptor to observe the first few cases in the clinician's hospital environment.</p> <p>4. Clinicians should be aware of any jurisdictional obligation in terms of licensing for the use of lasers.</p>	Consensus-based recommendation

3. Introduction

Lasers can be used in several clinical settings in obstetric and gynaecological surgery but at present have a limited clinical role. All practitioners should consider the adequacy of their own training and the evidence supporting the use of these devices before committing resources to such expensive technology.

4. Discussion and Recommendations

4.1 Gynaecology

4.1.1 What type of laser should be used for the treatment of lower genital tract pre-cancer and condylomata?

The laser of choice in this situation is the Carbon Dioxide (CO₂) laser. Debate continues about the pros and cons of laser ablation versus large loop excision of the transformation zone (LLETZ) for the treatment of cervical intraepithelial neoplasia.

Recommendation 1	Grade
The laser of choice for lower genital tract pre-cancer and condylomata is the Carbon Dioxide (CO ₂) laser.	Consensus-based recommendation

4.2 Obstetrics

4.2.1 What type of laser should be used for the treatment of twin-twin transfusion syndrome?

Laser photocoagulation has been used successfully in the treatment of twin-twin transfusion syndrome, with a survival of at least one fetus in 75-90 per cent of cases.¹ The laser of choice is either the Neodymium: YAG (Nd: YAG) or a Diode Pumped Solid State Laser (Diode Laser) with a wavelength of 400-600nm.

Recommendation 2	Grade and reference
The laser of choice for twin-twin transfusion syndrome is either the Neodymium: YAG (Nd: YAG) or a Diode Pumped Solid State Laser (Diode Laser) with a wavelength of 400-600nm	Consensus-based recommendation

4.3 Laparoscopic surgery

4.3.1 What type of laser should be used in laparoscopic surgery?

A number of different types of laser have been used in laparoscopic surgery. There is insufficient evidence to support the use of laser as opposed to any other energy source in laparoscopic surgery.

Good Practice Note	Grade
There is insufficient evidence to support the use of laser as opposed to any other energy source in laparoscopic surgery.	Good Practice Note

4.3.2 What are the training requirements for performing laser surgery?

1. Those performing laser surgery must be familiar with the use of lasers in medical settings.
 -) The physics, effects and safety aspects of lasers in surgery (an accredited biomedical engineer should guide this part of the course); and
 -) The clinical aspects of lasers in gynaecology which should cover the application and techniques for using lasers in one or more of the settings outlined in the background.
2. The specialist should attend a number of theatre/outpatient sessions observing the use of laser in an operative setting.
3. Where possible, invite a preceptor to observe the first few cases in the clinician's hospital environment.

Once these criteria have been fulfilled, credentialing in one or more of the clinical settings should be issued by the hospital before the clinician commences laser surgery as an independent operator.

Recommendation 3	Grade
<p>1. Those performing laser surgery must be familiar with the use of lasers in medical settings.</p> <ul style="list-style-type: none">) The physics, effects and safety aspects of lasers in surgery (an accredited biomedical engineer should guide this part of the course); and) The clinical aspects of lasers in gynaecology which should cover the application and techniques for using lasers in one or more of the settings outlined in the background. <p>2. The specialist should attend a number of theatre/outpatient sessions observing the use of laser in an operative setting.</p> <p>3. Where possible, invite a preceptor to observe the first few cases in the clinician's hospital environment.</p>	Consensus-based recommendation

5. References

1. Walker SP, Cole SA, Edwards AG *et al*. Twin-to-twin transfusion syndrome: is the future getting brighter? Aust N Z J Obstet Gynaecol 2007; 47: 158-168.

6. Other suggested reading

1. Standards Australia. Guide to the safe use of lasers in health care. AS/NZS 4173:2004. Available at: <http://infostore.saiglobal.com/store/details.aspx?ProductID=378218>
2. Nizard J, Barbet JP, Ville Y. Does the source of laser energy influence the coagulation of chorionic plate vessels? Comparison of Nd: YAG and diode laser on an ex vivo placental model. Fetal Diagn Ther. 22 (1): 33-7, 2007.
3. Yamamoto M, El Murr L, Robyr R, Leleu F, Takahashi Y, Ville Y. Incidence and impact of perioperative complications in 175 fetoscopy-guided laser coagulations of chorionic plate anastomoses in fetofetal transfusion syndrome before 26 weeks of gestation. Am J Obstet Gynecol. 193 (3) (Supplement): 1110-16, Sep 2005.
4. For links to Federal, State and Territory Acts and Regulations relating to legislation on the use of lasers, please refer to Radiation Protection Regulations and Standards in Australia and New Zealand at: <http://www.arpansa.gov.au/radiationprotection/links.cfm>

7. Links to other College statements

Guidelines for training in advanced endoscopic surgery and endometrial ablations (C-Trg 1)

https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical%20-%20Training/C-Trg-1_Guidelines-for-training-in-advanced-endoscopic-surgery_Review_Nov_12.pdf?ext=.pdf

Guidelines for training in advanced operative laparoscopy (C-Trg 2)

https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical%20-%20Training/C-Trg_2_Guidelines_for_performing_adv_oprative_laparoscopy_Review_Nov_10.pdf?ext=.pdf

Evidence-based Medicine, Obstetrics and Gynaecology (C-Gen 15)

[https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical%20-%20General/Evidence-based-medicine,-Obstetrics-and-Gynaecology-\(C-Gen-15\)-Review-March-2016.pdf?ext=.pdf](https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical%20-%20General/Evidence-based-medicine,-Obstetrics-and-Gynaecology-(C-Gen-15)-Review-March-2016.pdf?ext=.pdf)

8. Patient information

A range of RANZCOG Patient Information Pamphlets can be ordered via:

<https://www.ranzcog.edu.au/Womens-Health/Patient-Information-Guides/Patient-Information-Pamphlets>

Appendices

Appendix A Women's Health Committee Membership

Name	Position on Committee
Professor Yee Leung	Chair
Dr Joseph Sgroi	Deputy Chair, Gynaecology
Associate Professor Lisa Hui	Member
Associate Professor Ian Pettigrew	EAC Representative
Dr Tal Jacobson	Member
Dr Ian Page	Member
Dr John Regan	Member
Dr Craig Skidmore	Member
Associate Professor Janet Vaughan	Member
Dr Bernadette White	Member
Dr Scott White	Member
Associate Professor Kirsten Black	Member
Dr Greg Fox	College Medical Officer
Dr Marilyn Clarke	Chair of the ATSI WHC
Dr Martin Byrne	GPOAC Representative
Ms Catherine Whitby	Community Representative
Ms Sherryn Elworthy	Midwifery Representative
Dr Amelia Ryan	Trainee Representative

Appendix B Overview of the development and review process for this statement

i. Steps in developing and updating this statement

This statement was originally developed in July 2002 and was most recently reviewed in November 2013. The Women's Health Committee carried out the following steps in reviewing this statement:

-) Declarations of interest were sought from all members prior to reviewing this statement.
-) Structured clinical questions were developed and agreed upon.
-) At the November 2017 face-to-face committee meeting, the existing consensus-based recommendations were reviewed and updated (where appropriate) based on the

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available body of evidence and clinical expertise. Recommendations were graded as set out below in Appendix A part ii). An updated literature search to answer the clinical questions was undertaken where required.

ii. Declaration of interest process and management

Declaring interests is essential in order to prevent any potential conflict between the private interests of members, and their duties as part of the Women’s Health Committee.

A declaration of interest form specific to guidelines and statements was developed by RANZCOG and approved by the RANZCOG Board in September 2012. The Women’s Health Committee members were required to declare their relevant interests in writing on this form prior to participating in the review of this statement.

Members were required to update their information as soon as they become aware of any changes to their interests and there was also a standing agenda item at each meeting where declarations of interest were called for and recorded as part of the meeting minutes.

There were no significant real or perceived conflicts of interest that required management during the process of updating this statement.

iii. Grading of recommendations

Each recommendation in this College statement is given an overall grade as per the table below, based on the National Health and Medical Research Council (NHMRC) Levels of Evidence and Grades of Recommendations for Developers of Guidelines. Where no robust evidence was available but there was sufficient consensus within the Women’s Health Committee, consensus-based recommendations were developed or existing ones updated and are identifiable as such. Consensus-based recommendations were agreed to by the entire committee. Good Practice Notes are highlighted throughout and provide practical guidance to facilitate implementation. These were also developed through consensus of the entire committee.

Recommendation category		Description
Evidence-based	A	Body of evidence can be trusted to guide practice
	B	Body of evidence can be trusted to guide practice in most situations
	C	Body of evidence provides some support for recommendation(s) but care should be taken in its application
	D	The body of evidence is weak and the recommendation must be applied with caution
Consensus-based		Recommendation based on clinical opinion and expertise as insufficient evidence available
Good Practice Note		Practical advice and information based on clinical opinion and expertise

Appendix C Full Disclaimer

This information is intended to provide general advice to practitioners, and should not be relied on as a substitute for proper assessment with respect to the particular circumstances of each case and the needs of any patient.

This information has been prepared having regard to general circumstances. It is the responsibility of each practitioner to have regard to the particular circumstances of each case. Clinical management should be responsive to the needs of the individual patient and the particular circumstances of each case.

This information has been prepared having regard to the information available at the time of its preparation, and each practitioner should have regard to relevant information, research or material which may have been published or become available subsequently.

Whilst the College endeavours to ensure that information is accurate and current at the time of preparation, it takes no responsibility for matters arising from changed circumstances or information or material that may have become subsequently available.