Prophylactic antibiotics in obstetrics and gynaecology

Objectives: To provide advice on the use of prophylactic antibiotics in obstetrics and gynaecology.

Target audience: Health professionals providing maternity and gynaecological care, and patients.

Values: The evidence was reviewed by the Women’s Health Committee (RANZCOG), and applied to local factors relating to Australia and New Zealand.

Background: This statement was first developed by Women’s Health Committee in November 2011 and reviewed in March 2016.

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

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: November 2011
Current: July 2016
Review due: July 2019
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1. **Patient summary**

Antibiotics are used to treat or prevent infections caused by bacteria. If you are having an operation, you may be given antibiotics to prevent infection. Always tell your doctor if you have had an allergic reaction to an antibiotic and remind them of your allergy before you receive any antibiotics.

2. **Summary of recommendations**

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendation 1</td>
<td>Prescribers should use the current Therapeutic Guidelines: Antibiotic when prescribing antimicrobials as the primary source of information, and these should be readily accessible to clinicians wherever antimicrobials are being prescribed.</td>
</tr>
<tr>
<td>Recommendation 2</td>
<td>Local guidelines should take into account recommendations in the Therapeutic Guidelines and also reflect local antimicrobial susceptibilities and availability.</td>
</tr>
<tr>
<td>Recommendation 3</td>
<td>Consult the best available evidence and specialist clinicians for guidance on either prophylaxis or management of infections not covered in the Therapeutic Guidelines.</td>
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</table>

3. **Introduction**

The use of prophylactic antibiotics in obstetric and gynaecological surgery is an important part of conventional practice. Many institutions and jurisdictions have their own established protocols which should take into consideration the advice of the Therapeutic Guidelines: Antibiotic. Where these exist, and provided they are consistent with accepted national guidelines, they should be followed.

In the absence of such guidelines, the Australia Therapeutic Guidelines Limited (2014) contains advice regaining prophylactic antibiotics for hysterectomy and termination of pregnancy.¹

4. **Discussion and recommendations**

4.1 **Caesarean section**

Traditionally, antibiotics at caesarean section have been given after cord clamping, due to several potential concerns; 1) exposure of the fetus to antibiotics could mask newborn positive bacterial culture results; 2) fetal antibiotic exposure could lead to an increase in colonization or infection with antibiotic-resistant organisms, and 3) to avoid the risk of severe fetal compromise in the rare event of maternal anaphylaxis.

Against these potential concerns needs to be weighed the strong evidence that antibiotics given prior to skin incision reduce the risk of post-operative endometritis and surgical site infection by approximately 50%. These trials have not observed any increase in neonatal sepsis rates among patients randomised to pre-incision antibiotics. Whether the magnitude of benefit is the same for elective as emergency caesarean section is unclear.
Accordingly, it is suggested that:

- Antibiotic prophylaxis should be given for all caesarean sections.
- Antibiotics administered prior to skin incision will minimise the risk of post-operative infectious morbidity, but:
  - It may still be appropriate to administer post-delivery in patients who have a significant history of anaphylaxis to other antibiotics or uncertain drug allergy;
  - Consideration should be given to how the fetus could be delivered expeditiously in the rare event of maternal anaphylaxis.
- Surgical data suggests that for antimicrobial prophylaxis to be effective ideally it should be administered at least 30 minutes before caesarean section, to ensure a bactericidal concentration is reached by the time of incision. For example, at the time of IV cannulation.
- Narrow-spectrum antibiotics that are effective against gram-positive and gram-negative bacteria with some anaerobic bacteria are the most appropriate choice.
- 1g intravenous cefazolin is an appropriate antibiotic choice, with an increased dose (2g) indicated for obese women (>100kg).
- For women with a significant allergy to β-lactam antibiotics, such as cephalosporins and penicillins, clindamycin with gentamicin is a reasonable alternative.

Surgical prophylaxis should still be administered even if the patient is receiving antibiotics for prolonged rupture of the membrane.

4.2 Group B streptococcus
All women with known carriage or risk factors for Group B streptococcus should be treated with prophylactic antibiotics in labour as per RANZCOG College Statement C-Obs 19 (see link below).

4.3 Preterm prelabour rupture of membranes (PPROM)
Antibiotic prophylaxis for women with PPROM is associated with prolonged pregnancy and reduced maternal and neonatal infection. However, evidence that antibiotic prophylaxis in PPROM alters perinatal mortality or longer term outcomes is lacking. The use of antibiotic prophylaxis in women with preterm labour in the absence of membrane rupture is not supported by the evidence.1 There are two rationales for administering antibiotics in PPROM

(i) For GBS chemoprophylaxis due to the high risk of spontaneous preterm labour (a known risk factor for early onset GBS disease) and because maternal carriage status is usually not available prior to term, and

(ii) To prolong gestation (increase latency period).

The choice of antibiotics in PPROM depends on whether clinical signs of chorioamnionitis are present. Therapies may be modified based on the results of investigations. For patients with a hypersensitivity to penicillins, refer to the Therapeutic Guidelines or seek expert advice.

- For PPROM without chorioamnionitis, IV antibiotics for GBS prophylaxis (eg amoxy/ampicillin 2g IV. 6 hourly for 48 hours, and antibiotics for latency (eg erythromycin 250mg orally, 6 hourly for 10 days or erythromycin (ethyl succinate formulation) 400mg orally, 6 hourly for 10 days).
• For PPROM with chorioamnionitis, broader spectrum IV antibiotics are required and should be continued until after delivery (eg Amoxy/ampicillin 2g IV. 6 hourly PLUS gentamycin IV PLUS metronidazole 500mg IV, 12 hourly). ¹

4.3 Prophylactic antibiotics in obstetrics
In obstetrics, there are some issues that are not well clarified:

• Available evidence does not support the use of prophylactic antibiotics to reduce infectious morbidity following operative vaginal delivery. ²

• There is insufficient evidence for or against the use of prophylactic antibiotics to reduce infectious morbidity for manual removal of the placenta. ²

• Available evidence does not support the use of prophylactic antibiotics to reduce infectious morbidity following elective or emergency cerclage. ²

• The evidence is not robust for the use of antibiotic prophylaxis to prevent perineal wound complications following third or fourth degree tears. ³

While there is inadequate randomised evidence to dictate uniform antibiotic prescribing practice in the above situations, the decision regarding prophylactic antibiotics should be made in each case, based on the clinical situation and individual patient circumstances.

4.4 Prophylactic antibiotics in gynaecology
There are no recommendations for routine prophylactic antibiotics for the following gynaecological procedures in healthy women with no risk factors:

• Insertion of intrauterine contraceptive device (IUCD); ⁴

• Patients undergoing diagnostic laparoscopy; ⁴

• Patients having hysteroscopic surgery; ⁴

• Hysterosalpingography (HSG) without a prior history of pelvic inflammatory disease; ⁴ and

• Large Loop Excision of Transformation Zone (LLETZ). ⁵

However, antibiotic therapy should be instituted in any of the procedures listed above if there is reason to suspect infection risk or if the findings at the procedure indicate risk of infection e.g. dilated fallopian tubes at HSG.

There is debate on the value of routine prophylactic antibiotics for midurethral sling procedures. ⁶

Broad spectrum antibiotics should be used during major abdominal, laparoscopic or vaginal procedures. The choice of antibiotics should be guided by local guidelines, recommendations in the Therapeutic Guidelines and also reflect local antimicrobial susceptibilities.
5. References


4. ACOG Antibiotic prophylaxis for gynecologic procedures 2009 May. ACOG practice bulletin; No.104.


6. Other suggested reading


7. Links to other College statements

Screening and Treatment for Group B Streptococcus in Pregnancy (C-Obs 19)
Appendices

Appendix A Women’s Health Committee Membership

<table>
<thead>
<tr>
<th>Name</th>
<th>Position on Committee</th>
</tr>
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<tbody>
<tr>
<td>Professor Stephen Robson</td>
<td>Chair and Board Member</td>
</tr>
<tr>
<td>Dr James Harvey</td>
<td>Deputy Chair and Councillor</td>
</tr>
<tr>
<td>Associate Professor Anusch Yazdani</td>
<td>Member and Councillor</td>
</tr>
<tr>
<td>Associate Professor Ian Pettigrew</td>
<td>Member and Councillor</td>
</tr>
<tr>
<td>Dr Ian Page</td>
<td>Member and Councillor</td>
</tr>
<tr>
<td>Professor Yee Leung</td>
<td>Member of EAC Committee</td>
</tr>
<tr>
<td>Professor Sue Walker</td>
<td>General Member</td>
</tr>
<tr>
<td>Dr Lisa Hui</td>
<td>General Member</td>
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<tr>
<td>Dr Joseph Sgroi</td>
<td>General Member</td>
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<tr>
<td>Dr Marilyn Clarke</td>
<td>General Member</td>
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<tr>
<td>Dr Donald Clark</td>
<td>General Member</td>
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<tr>
<td>Associate Professor Janet Vaughan</td>
<td>General Member</td>
</tr>
<tr>
<td>Dr Benjamin Bopp</td>
<td>General Member</td>
</tr>
<tr>
<td>Associate Professor Kirsten Black</td>
<td>General Member</td>
</tr>
<tr>
<td>Dr Bernadette White</td>
<td>General Member</td>
</tr>
<tr>
<td>Dr Jacqueline Boyle</td>
<td>Chair of the ATSIWHC</td>
</tr>
<tr>
<td>Dr Martin Byrne</td>
<td>GPOAC representative</td>
</tr>
<tr>
<td>Ms Catherine Whitby</td>
<td>Community representative</td>
</tr>
<tr>
<td>Ms Sherryn Elworthy</td>
<td>Midwifery representative</td>
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<tr>
<td>Dr Michelle Proud</td>
<td>Trainee representative</td>
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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 November 2011 and was most recently reviewed in March 2016. 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.
- An updated literature search to answer the clinical questions was undertaken.
- At the March 2016 face-to-face committee meeting, the existing consensus-based recommendations were reviewed and updated (where appropriate) based on the available body of evidence and clinical expertise. Recommendations were graded as set out below in Appendix B part iii)

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.

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