The Royal Australian and New Zealand College of Obstetricians and Gynaecologists

Excellence in Women's Health

Vitamin and Mineral Supplementation and Pregnancy

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 2008
Current: November 2019
Review due: November 2022

Objectives: To provide advice on the management of vitamin and mineral supplementation in pregnancy.

Outcomes: To ensure women are provided best practice advice on correct dosage of vitamin and mineral supplementation in pregnancy based on current recommendations.

Target audience: All health practitioners providing maternity care.

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 July 2008 and reviewed in November 2019.

Funding: This statement was developed by RANZCOG and there are no relevant financial disclosures.

Table of contents

1. Plain language summary

Pregnancy and breastfeeding are times when some women may need additional nutrients in their diet. Maintaining a healthy, balanced diet is important but additional supplements have been shown to be important as well. Important supplements include folic acid and iodine in the doses recommended below. In some women supplementation with vitamins B12, D, and K, as well as iron, calcium, and omega-3 fatty acids can be important. The details of these recommendations are contained in this document.

There is no evidence for additional supplements, some may be harmful.

2. Summary of recommendations

Recommendation 1	Grade
Folic acid should be taken for a minimum of one month before conception and for the first 12 weeks of pregnancy.	A
Recommendation 2	**Grade**
The recommended dose of folic acid is at least 500 mcg daily in Australia and 800 mcg daily in New Zealand to aid the prevention of neural tube defects (NTD). Where there is a known increased risk of NTD or a risk of malabsorption, a 5mg daily dose is recommended.	A References 3-6
Recommendation 3	**Grade**
Vegetarian or vegan diets should be supplemented with Vitamin B12 during pregnancy and lactation. The RDI of B12 in pregnancy is 2.6 mcg/day. The RDI of B12 during lactation is 2.8 mcg/day.	Consensus-based recommendation Reference 7
Recommendation 4	**Grade**
Do not test Vitamin D levels in pregnancy as part of routine pregnancy screening, regardless of maternal risk factors	A References 11-13
Recommendation 5	
Do not re-test vitamin D in pregnancy, irrespective of previous level.	Consensus-based recommendation
Recommendation 6	**Grade**
Advise all pregnant women, irrespective of their skin pigment and/or sun exposure, to take 400IU of vitamin D daily during pregnancy as part of a multivitamin supplement.	Consensus-based recommendation Reference 9
Recommendation 7	**Grade**
Advise women about safe sun exposure.	Consensus-based recommendation
Recommendation 8	**Grade**
Exclusively breastfed infants should be given 400 IU daily of Vitamin D for at least the first 6 months of life. Infants on full formula feeds do not routinely require supplementation. [14]	Consensus-based recommendation References 9,14,15

Recommendation 9	Grade
Vitamin K should be administered in late pregnancy to women with proven cholestasis of pregnancy, due to reduced Vitamin K absorption.	Consensus-based recommendation
Recommendation 10	**Grade**
Routine iron supplementation is not recommended in every pregnancy. All women should have their haemoglobin level checked at the first antenatal visit and again at approximately 28 weeks' gestation and any anaemia investigated and treated.	Consensus-based recommendation
Recommendation 11	**Grade**
The recommended dietary intake of calcium per day for pregnant women is 1300mg (ages 14-18 years) and 1000mg (19-50 years). If the woman avoids dairy in her usual diet and does not consume alternative high calcium foods, she should take a calcium supplementation of at least 1000mg per day.	Consensus-based recommendation Reference 16
Recommendation 12	**Grade**
Women who are pregnant, breastfeeding or considering pregnancy should take an iodine supplement of 150 micrograms each day.	Consensus-based recommendation Reference 17
Good Practice Point	**Grade**
Women whose dietary intake of Omega-3 fatty acids is low, for example those who eat very little seafood, should consider a dietary supplementation which may be obtained from fish oil and some commercially available pregnancy supplements.	Consensus-based recommendation

3. Introduction

A healthy, balanced diet is strongly recommended before, during and after pregnancy.[1, 2] Good nutrition and appropriate weight gain can improve pregnancy outcomes. Although, in the general population, a healthy balanced diet should largely obviate the need for vitamin and mineral supplementation, pregnancy and lactation create extra nutritional demands that, for some individuals, may make supplementation advisable. For a comprehensive guide to supplementation in pregnancy the reader is referred to the references at the end of this statement.

Good Practice Point	Grade
A healthy, balanced diet is strongly recommended before, during and after pregnancy.	Consensus-based recommendation References [1, 2]

4. Discussion and recommendations

4.1 Vitamins

4.1.1 Folate

It is recommended that folic acid should be taken for a minimum of one month before conception and for the first 12 weeks of pregnancy. The recommended dose of folic acid is at least 500 mcg daily in Australia and 800 mcg daily in New Zealand to aid the prevention of neural tube defects (NTD). Where there is a known increased risk of NTD (patients taking anticonvulsant medication, pre-pregnancy diabetes mellitus, previous child or family history of NTD or BMI >30), or a risk of malabsorption, a 5mg daily dose is recommended. While it is well established that pre-pregnancy and early pregnancy dietary supplementation with folic acid is effective in reducing the incidence of NTD; the most effective dose of folic acid is to be determined and is the subject of ongoing research.[3-6]

Women at increased risk of folate deficiency (e.g. multiple pregnancies, haemolytic anaemia) should have their full blood count monitored and be treated if evidence of folate deficiency.

Recommendation 1	Grade
Folic acid should be taken for a minimum of one month before conception and for the first 12 weeks of pregnancy.	A
Recommendation 2	**Grade**
The recommended dose of folic acid is at least 500mcg daily to aid the prevention of neural tube defects (NTD). Where there is a known increased risk of NTD or a risk of malabsorption, a 5mg daily dose is recommended.	A References [3-6]

4.1.2 Vitamin B12

Vegetarian and vegan diets should be supplemented with Vitamin B12 during pregnancy and lactation. Untreated maternal B12 deficiency has been reported to cause neurological sequelae in exclusively breast fed infants (Recommended Daily Intake (RDI) 2.6 mcg/day in pregnancy and 2.8 mcg in lactation[7]).

Recommendation 3	Grade
Vegetarians and vegans should be supplemented with Vitamin B12 in pregnancy and lactation. The RDI of B12 in pregnancy is 2.6 mcg/day. The RDI of B12 during lactation is 2.8 mcg/day.	Consensus-based recommendation Reference [7]

4.1.3 Composite B-group Vitamins

Hyperhomocysteinaemia is the commonest of the thrombophilias with approximately 1.5% of the population being homozygous for the MTHFR mutation and 25% heterozygous. The thrombophilic tendency is minimised by an adequacy of folate, riboflavin, B6 and B12. In the absence of any screening for this condition, some clinicians advise that all women should ensure an adequate intake of these vitamins.

4.1.4 Vitamin D

Vitamin D (25-hydroxy vitamin D) is essential for absorption of calcium from the gut and bone mineralisation. The major source of vitamin D is UVB exposure in sunlight. Vitamin D is either synthesised in skin in a process requiring ultraviolet (UV) light or ingested as food or vitamin supplements. Vitamin D functions as a hormone and is required for absorption of calcium and phosphate, which assists in bone growth and development. While sun exposure is important to produce vitamin D, excess UV exposure has its own hazards, particularly skin malignancies.

Vitamin D deficiency can be defined as serum levels <50nmol/L and insufficiency as serum levels <75nmol/L. Vitamin D deficiency is common among pregnant women, and throughout the wider community, although there is variation between assay methods, and seasonal variation also occurs. Demographic factors including skin colour, BMI, and behaviours which avoid sun exposure, are poor predictors of the level of Vitamin D, in communities with overall high rates of Vitamin D deficiency.[8]

A recent comprehensive national review in the UK has defined the recommended daily intake for all population groups above the age of 4, including pregnant and lactating women, to be 400 IU. This is the average amount needed by 97.5% of the population to maintain a serum 25(OH)D concentration ≥ 25 nmol/L when UVB sunshine exposure is minimal.[9]

Women with Vitamin D insufficiency or deficiency are usually asymptomatic. Children with severe Vitamin D deficiency are at risk of hypocalcaemic seizures and rickets.[10]

Vitamin D deficiency in pregnancy has been noted to have associations with a number of maternal and neonatal adverse outcomes. However, in systematic reviews and two large, high quality RCTs, antenatal Vitamin D supplementation at varying doses has not consistently been shown to improve maternal or neonatal outcomes. Specifically, maternal antenatal vitamin D supplementation.[11-13]

- Increases maternal and cord blood levels of Vitamin D
- Does not improve maternal obstetric outcomes.
- Does not improve infant Vitamin D levels at 3, 6 or 12 months
- Does not improve neonatal measures of bone density at 2 weeks
- Is associated with approximately 20% reduction in the rate of childhood wheezing at 3 years, regardless of maternal Vitamin D level, but not a reduction in other respiratory outcomes

Recommendation 4	Grade
Do not test Vitamin D levels in pregnancy as part of routine pregnancy screening, regardless of maternal risk factors.	A References 11-13
Recommendation 5	
Do not re-test vitamin D in pregnancy, irrespective of previous level.	Consensus-based recommendation
Recommendation 6	**Grade**
Advise all pregnant women, irrespective of their skin pigment and/or sun exposure, to take 400IU of vitamin D daily during pregnancy as part of a multivitamin supplement.	Consensus-based recommendation Reference 9
Recommendation 7	**Grade**
Advise women about safe sun exposure.	Consensus-based recommendation
Recommendation 8	**Grade**
Exclusively breastfed infants should be given 400 IU daily of Vitamin D for at least the first 6 months of life. Infants on full formula feeds do not routinely require supplementation.	Consensus-based recommendation 9, 14, 15

4.1.5 Vitamin K

Vitamin K should be administered in late pregnancy to women with proven cholestasis of pregnancy, due to reduced Vitamin K absorption. It may be given orally or parenterally according to patient and clinician preference. It is also recommended for women on enzyme inducing anticonvulsant medication, although recent evidence casts doubt on the need for this.

Recommendation 9	Grade
Vitamin K should be administered in late pregnancy to women with proven cholestasis of pregnancy, due to reduced Vitamin K absorption.	Consensus-based recommendation

4.1.6 Other Vitamin Supplementation

There is little evidence to support "routine" supplementation of other vitamins in pregnancy such as Vitamin A, C and E and, not unexpectedly, excessive quantities of fat-soluble vitamins may be harmful.

Vitamin A supplementation is contraindicated in pregnancy.

4.2 Minerals

4.2.1 Iron

The iron demands of pregnancy and lactation are particularly pronounced due to the expanded red cell volume, blood loss around the time of delivery and the demands of the developing fetus and placenta. Iron supplementation will generally be recommended for women at particular risk of iron deficiency. This includes vegetarians and women with a multiple pregnancy. Women with iron deficiency anemia, will need additional supplementation, with a specific iron supplement, containing at least 60mg of iron daily. All women should have their haemoglobin level checked at the first antenatal visit and again at approximately 28 weeks' gestation and any anaemia investigated and treated. Routine iron supplementation is not recommended in every pregnancy.

Recommendation 10	Grade
Routine iron supplementation is not recommended in every pregnancy. All women should have their haemoglobin level checked at the first antenatal visit and again at approximately 28 weeks' gestation and any anaemia investigated and treated.	Consensus-based recommendation

4.2.2 Calcium

It is important to ensure adequate dietary calcium intake to maintain maternal skeletal mineralisation. The recommended dietary intake of calcium per day for pregnant women is 1300mg (ages 14-18 years) and 1000mg (19-50 years).[7] If the woman avoids dairy in her usual diet (e.g. lactose intolerant) and does not consume alternative high calcium food (e.g. calcium enriched soya milk), calcium supplementation is recommended at 1000mg/day. A Cochrane Systematic review has reported a benefit of calcium supplementation, of at least 1000mg/day during pregnancy, in reducing the incidence of hypertensive disorders and preterm labour. The effect on pre-eclampsia was greater for women with low baseline calcium intake.[16]

Recommendation 11	Grade
The recommended dietary intake of calcium per day for pregnant women is 1300mg (ages 14-18 years) and 1000mg (19-50 years). If the woman avoids dairy in her usual diet and does not consume alternative high calcium foods, she should take a calcium supplementation of at least 1000mg per day.	Consensus-based recommendation Reference [16]

4.2.3 Iodine

Iodine deficiency appears to be increasing in frequency. This may in part be related to a reduction in iodised salt intake and reduction of iodine in milk. Recent research suggests that even subclinical hypothyroidism may have clinical sequelae, making it imperative to avoid iodine deficiency in pregnancy. Iodine supplementation is mandatory in areas of regional deficiency. Women who are pregnant, breast feeding or considering pregnancy should take an iodine supplement of 150 micrograms each day.[17]

Recommendation 12	Grade
Women who are pregnant, breastfeeding or considering pregnancy should take an iodine supplement of 150 mcg each day.	Consensus-based recommendation Reference [17]

4.2.4 Other Minerals

There is little evidence to support "routine" supplementation of other minerals in pregnancy such as magnesium, zinc or rare minerals.

4.3 Other Nutritional Supplements

4.3.1 Omega-3 fatty acids

Omega-3 fatty acids are known to be critically important building blocks for the developing fetal brain and retina. Their essential source is dietary intake, principally vegetable oils and seafood. Seafood is the richest source of the most biologically active Omega-3 fatty acids, docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA).[18]

While there are many nutritional benefits from eating fish in pregnancy, concerns have been raised regarding the intake of environmental pollutants, particularly mercury. This concern has prompted guidelines from Food Standards Australia New Zealand to recommend no more than 2-3 serves (150g / serve) of fish per week for pregnant women. Further, for large long living fish there are additional restrictions advised, for example one serve of shark per fortnight is recommended, with no other fish intake for the fortnight.[19]

Women whose dietary intake of Omega-3 fatty acids is low, for example those who eat very little seafood, should consider a dietary supplementation which may be obtained from fish oil and some commercially available pregnancy supplements.

The place of fish oil supplementation for pregnant women is a subject of ongoing research. While some studies have shown a benefit of dietary supplementation with fish oil during pregnancy with regard to improvement of neurodevelopmental outcome and reduction of pre-term labour, other studies have not. No conclusive evidence of benefit using fish oil supplements in pregnancy is yet confirmed and further meta-analysis and well powered, high quality trials are needed.[18, 20, 21]

There is a deficiency of high quality to evidence that would support the use of other nutritional supplements in pregnancy. In the absence of such evidence, the best advice would be to avoid such supplements, particularly in the first trimester of pregnancy where any unanticipated adverse effect is more likely to occur.

Good Practice Point	Grade
Women whose dietary intake of Omega-3 fatty acids is low, for example those who eat very little seafood, should consider a dietary supplementation which may be obtained from fish oil and some commercially available pregnancy supplements.	Consensus-based recommendation

4.3.2 Probiotics

Probiotics are live microorganisms consumed in order to improve gastrointestinal health through their effect on the gut microbiota. The most common probiotic strains are Lactobacillus and Bifidobacterium and can be consumed as oral tablets, liquid form, vaginal capsules or from fermented foods. Probiotics are commonly taken to improve gastrointestinal health, especially in women of childbearing age. There is some evidence to suggest their impact on inflammation, immunity and glucose metabolism. The ingestion of probiotics during pregnancy may therefore affect pregnancy outcomes such as pre-term birth and diabetes mellitus. Currently high-quality evidence is limited.

There is limited evidence regarding neonatal outcomes, such as atopy, of women taking probiotics during pregnancy.

Safety data for the consumption of probiotics is scant. Systemic absorption and bacteraemia is rare and therefore ingestion is unlikely to cause safety concerns during pregnancy.

Currently there is insufficient evidence to support routine supplementation with probiotics in pregnancy, further studies regarding outcomes and safety are needed.

5. Summary

Most proprietary pregnancy and lactation multivitamin preparations are adequate for the majority of pregnancies. The commonest exceptions will be the vegetarian/vegan needing additional iron and women for whom high dose (5 mg) of folic acid are recommended on clinical grounds.

6. References

1. Women's and Children's Health Network GoSA. Nutrition for Pregnancy and Breastfeeding2014. Available from: http://www.wch.sa.gov.au/services/az/other/nutrition/documents/Pregnancy_Breastfeeding.pdf.

2. NZ Ministry of Health. Food and Nutrition Guidelines for Healthy Pregnant and Breastfeeding Women: A background paper2008. Available from: http://www.health.govt.nz/publication/food-and-nutrition-guidelines-healthy-pregnant-and-breastfeeding-women-background-paper.

3. Bortolus R, Blom F, Filippini F, van Poppel MN, Leoncini E, de Smit DJ, et al. Prevention of congenital malformations and other adverse pregnancy outcomes with 4.0 mg of folic acid: community-based randomized clinical trial in Italy and the Netherlands, BMC Pregnancy Childbirth. 2014;14:166.

4. Goh YI, Koren G. Folic acid in pregnancy and fetal outcomes, J Obstet Gynaecol. 2008;28(1):3-13.

5. Chatzi L, Papadopoulou E, Koutra K, Roumeliotaki T, Georgiou V, Stratakis N, et al. Effect of high doses of folic acid supplementation in early pregnancy on child neurodevelopment at 18 months of age: the mother-child cohort 'Rhea' study in Crete, Greece, Public Health Nutr. 2012;15(9):1728-36.

6. Bower C, DeKlerk N. Scientific evidence of benefits and risks of an increase in folic acid intake in Australia and New Zealand. FSANZ EOI Folic Acid.Part 1. 2005. Available from: http://www.foodstandards.gov.au/code/proposals/documents/Health%20benefits%20and%20risk%20-%20part%201.pdf.

7. National Health and Medical Research Council and New Zealand Ministry of Health. Nutrient Reference Values for Australia and New Zealand Including Recommended Dietary Intakes. 2006.

8. Davies-Tuck M, Yim C, Knight M, Hodges R, Doery JCG, Wallace E. Vitamin D testing in pregnancy: Does one size fit all?, Australian and New Zealand Journal of Obstetrics and Gynaecology. 2015;55(2):149-55.

9. The Scientific Advisory Committee on Nutrition (SACN). SACN Vitamin D and health report 2016.

10. Chung M, Lee J, Terasawa T, Lau J, Trikalinos TA. Vitamin D with or without calcium supplementation for prevention of cancer and fractures: an updated meta-analysis for the U.S. Preventive Services Task Force, Ann Intern Med. 2011;155(12):827-38.

11. Roth DE, Leung M, Mesfin E, Qamar H, Watterworth J, Papp E. Vitamin D supplementation during pregnancy: state of the evidence from a systematic review of randomised trials, BMJ. 2017;359:j5237.

12. Roth DE, Gernand AD, Al Mahmud A. Vitamin D Supplementation in Pregnancy and Lactation and Infant Growth, N Engl J Med. 2018;379(19):1881.

13. Cooper C, Harvey NC, Bishop NJ, Kennedy S, Papageorghiou AT, Schoenmakers I, et al. Maternal gestational vitamin D supplementation and offspring bone health (MAVIDOS): a multicentre, double-blind, randomised placebo-controlled trial, Lancet Diabetes Endocrinol. 2016;4(5):393-402.

14. Gartner LM, Greer FR, Section on B, Committee on Nutrition. American Academy of P. Prevention of rickets and vitamin D deficiency: new guidelines for vitamin D intake, Pediatrics. 2003;111(4 Pt 1):908-10.

15. Munns CF, Shaw N, Kiely M, Specker BL, Thacher TD, Ozono K, et al. Global Consensus Recommendations on Prevention and Management of Nutritional Rickets, Horm Res Paediatr. 2016;85(2):83-106.

16. Hofmeyr GJ, Lawrie TA, Atallah AN, Duley L, Torloni MR. Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems, Cochrane Database Syst Rev. 2014(6):CD001059.

17. National Health and Medical Research Council. Iodine supplementation for Pregnant and Breastfeeding Women: Public statement. 2010.

18. Coletta JM, Bell SJ, Roman AS. Omega-3 Fatty acids and pregnancy, Rev Obstet Gynecol. 2010;3(4):163-71.

19. Food Standards Australia New Zealand. Mercury in Fish 2011. Available from: https://www.foodstandards.gov.au/consumer/chemicals/mercury/Pages/default.aspx.

20. Gould JF, Smithers LG, Makrides M. The effect of maternal omega-3 (n-3) LCPUFA supplementation during pregnancy on early childhood cognitive and visual development: a systematic review and meta-analysis of randomized controlled trials, Am J Clin Nutr. 2013;97(3):531-44.

21. Makrides M, Gould JF, Gawlik NR, Yelland LN, Smithers LG, Anderson PJ, et al. Four-year follow-up of children born to women in a randomized trial of prenatal DHA supplementation, JAMA. 2014;311(17):1802-4.

22. National Health and Medical Research Council. NHMRC additional levels of evidence and grades for recommendations for developers of guidelines. Canberra2009.

7. Other suggested reading

Choulika S, Grabowski E, Holmes LB. Is antenatal vitamin K prophylaxis needed for pregnant women taking anticonvulsants? Am J Obstet Gynecol 2004; 190 (4): 882-3.

Edward Stanley Emery, et al. Vitamin B12 Deficiency: A cause of Abnormal Movement in Infants. Journal of Pediatrics 1997; 99 (2): 255.

Nelen WL. Hyperhomocysteinaemia and human reproduction. Clin Chem Lab Med 2001; 39 (8): 758-63.

8. Links to other College statements

Pre-pregnancy Counselling (C-Obs 03a)
https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Pre-pregnancy-Counselling-(C-Obs-3a)-Amended-April-2015.pdf?ext=.pdf

Routine Antenatal Assessment in the absence of pregnancy complications (C-Obs 03b)
https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Routine-Antenatal-Assessment-(C-Obs-3(b))-Review-July-2016.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

9. 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 and Board Member
Dr Gillian Gibson	Deputy Chair, Gynaecology
Dr Scott White	Deputy Chair, Obstetrics and Subspecialties Representative
Associate Professor Ian Pettigrew	Member and EAC Representative
Dr Kristy Milward	Member and Councillor
Dr Will Milford	Member and Councillor
Dr Frank O'Keeffe	Member and Councillor
Professor Sue Walker	Member
Dr Roy Watson	Member and Councillor
Dr Susan Fleming	Member and Councillor
Dr Sue Belgrave	Member and Councillor
Dr Marilyn Clarke	ATSI Representative
Associate Professor Kirsten Black	Member
Dr Thangeswaran Rudra	Member
Professor Steve Robson	Member
Dr Nisha Khot	Member and SIMG Representative
Dr Judith Gardiner	Diplomate Representative
Dr Angela Brown	Midwifery Representative, Australia
Ms Adrienne Priday	Midwifery Representative, New Zealand
Ms Ann Jorgensen	Community Representative
Dr Rebecca Mackenzie-Proctor	Trainee Representative
Professor Caroline De Costa	Co-opted member (ANZJOG member)
Dr Christine Sammartino	Observer

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 2008 and was most recently reviewed in November 2019. The existing consensus-based recommendations were reviewed and updated (where appropriate) based on the available body of evidence and clinical expertise in November 2019 by the Women's Health Committee.

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.[22] 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.