COUNTIES MANUKAU HEALTH

Community Prescribing Guide for Maternity Care

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Contents

Introduction

Purpose:

The purpose of these guidelines is to provide general practitioners (GPs) and midwives working in the community with a reference of recommendation to prescribe medicines for women and babies under their care. Guidelines do not replace clinical judgement.

Preface:

These guidelines contain two parts which are colour coded as below. They are intended to be a brief reference source to cover antenatal and postnatal care in the community. No consideration is given to intrapartum care. The guidelines are intended for use in the community setting, therefore only medicines which are commonly used in the community are included (for example, IV antibiotics are not included in this booklet); this list is not exhaustive.

Part 1: Clinical Monographs

This includes diagnosis, patient advice, treatment rationale and medications of choice. The medication chosen for treatment is primarily based on the most effective treatment that may be used safely in pregnancy and lactation. The medication monographs in part 2 should be referred to in conjunction with this advice.

Part 2: Medication Monographs

This includes preparations available, indication, dosage, contra-indications, cautions, adverse effects, interactions, patient information and data regarding safety in pregnancy and breastfeeding. This information has been adapted from the common reference resources which are referenced at the end of each monograph. The disclaimer at the beginning of this section should be read before using the monographs. Consideration is also given to subsidy of pharmaceuticals in the community.

Midwives:

As authorised prescribers, the Medicines Amendment Regulations 2011 allows midwives to prescribe for women and their newborn infant(s) that are under their care, in accordance with their scope of practice as defined by the Midwifery Council. A midwife's scope of practice directs her to "work in partnership with women on her own professional responsibility, to give women the necessary support, care and advice during pregnancy, labour and the postpartum period up to six weeks, to facilitate births and to provide care for the newborn".

The New Zealand College of Midwives (NZCOM) expects midwives to have knowledge regarding the effects, adverse effects, interactions and contra-indications of the medications that they prescribe. Midwives are expected to only prescribe within the level of their knowledge and expertise. Midwives should NOT prescribe medicines for the treatment of underlying conditions, for example hypertension, asthma.

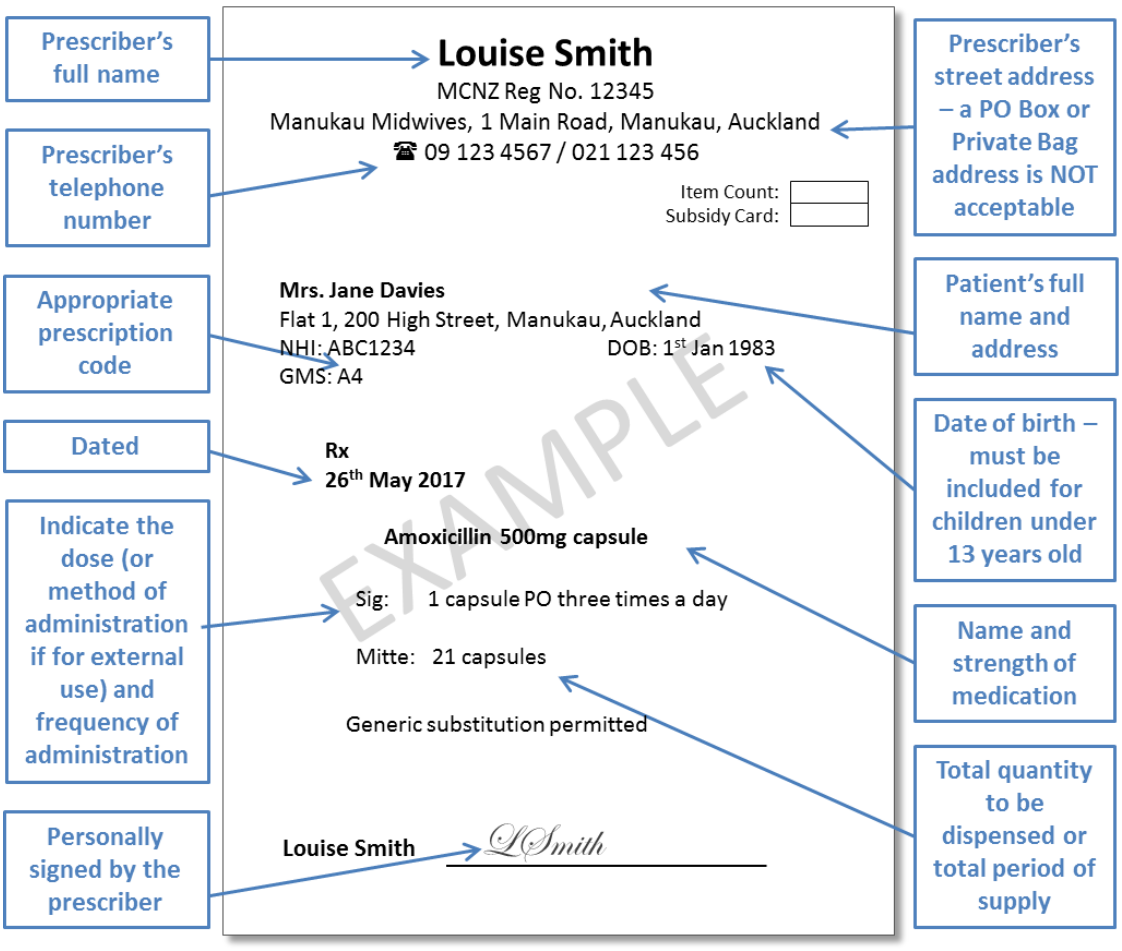
Legal Requirements for a Prescription:

Prescriptions must meet the legal requirements set out in the Medicines Regulations 1984 regulation 41 which states that every prescription shall:

a) be legibly and indelibly printed; and
b) be signed personally by the prescriber and dated; and
c) set out the following information in relation to the prescriber:
    i) the prescriber's full name; and
    ii) the full street address of the prescriber's place of work or, in the absence of the prescriber having a place of work, the postal address of the prescriber; and
    iii) the prescriber's telephone number; and
d) set out:
    i) the surname, each given name, and the address of the person for whose use the prescription is given; and
    ii) in the case of a child under the age of 13 years, the date of birth of the child; and

e) indicate the name of the medicine and, where appropriate the strength that is required to be dispensed; and
f) indicate the total amount of medicine that may be sold or dispensed, or the total period of supply; and
g) if the medicine is to be administered by injection, or by insertion into any cavity of the body, or by swallowing, indicate the dose and frequency of dose; and
h) if the medicine is for application externally, indicate the method and frequency of use.

The example below demonstrates a typical prescription which meets the appropriate legal requirements:



Note that for a community pharmaceutical, other than a Class B Controlled Drug, only a quantity sufficient to provide treatment for a period not exceeding 3 months will be subsidised, with the exception of oral contraceptives for which a maximum of 6 months supply can be requested per prescription.

Prescription Charges and Coding:

Everyone who is eligible for publically funded health care should, in most circumstances, pay only $5 per item for fully subsidised medicines. This $5 fee is a small contribution to the cost of the medicine that community pharmacy is asking the patient to pay on behalf of government for their funded medication.
There is no prescription charge for subsidised medicines for children under 13 years of age. The cost of partially subsidised or non-subsidised medicines to the patient will vary depending on the medicine prescribed.

Discharge prescriptions will be dispensed at a community retail pharmacy.

See table below for patient category codes. Hospital or District Health Board prescriptions for adults entitled to receive public funding for medications are usually coded as A4.

Y	Youth (0 – 12 years)
J	Junior (13 – 17 years)
A	Adult (over 18 years)
Z	High User Health Card (HUHC) Holder
O	Oral Contraceptive
1	Community Services Card (CSC) Holder
3	No CSC and not Eligible Prescriber
4	Eligible Prescriber e.g. Primary Healthcare Organisation (PHO) enrolled or District Health Board (DHB)
NS	Not Subsidised e.g. overseas visitor without reciprocal health agreement

DISCLAIMER: The information in these guidelines is provided as an aid to the provision of antenatal and postnatal care, and sets out basic guidelines for prescribing to women and babies. It is not a comprehensive information source and should not be relied upon as such. Whilst care has been taken in compiling the information in these guidelines, there is the potential that they contain errors or that the information within them is superseded in time. Because of the potential for error and changes in midwifery practice, none of the parties involved in the preparation of these guidelines warrants that the information within them is accurate or complete and shall have no liability for any loss or damage arising out of reliance on the information within them. The guidelines are not to be used as a substitute for clinical judgement; all clinical staff using these guidelines must take into account the particular circumstances of the client they are treating before making any clinical or prescribing decisions. CMH Guidelines referred to in this booklet were the most up to date versions at the time of publishing; it is the user's responsibility to check whether an updated version has been issued since then. This also applies to external guidelines which may be referenced throughout the booklet. Counties Manukau Health (CMH) does not endorse or promote any of the particular products or medications referred to in the guidelines. Please consult other sources of information, especially if there is some doubt, including the product literature, primary references or contact the Medicines Information Service at Middlemore Hospital (09) 276 0257.

References

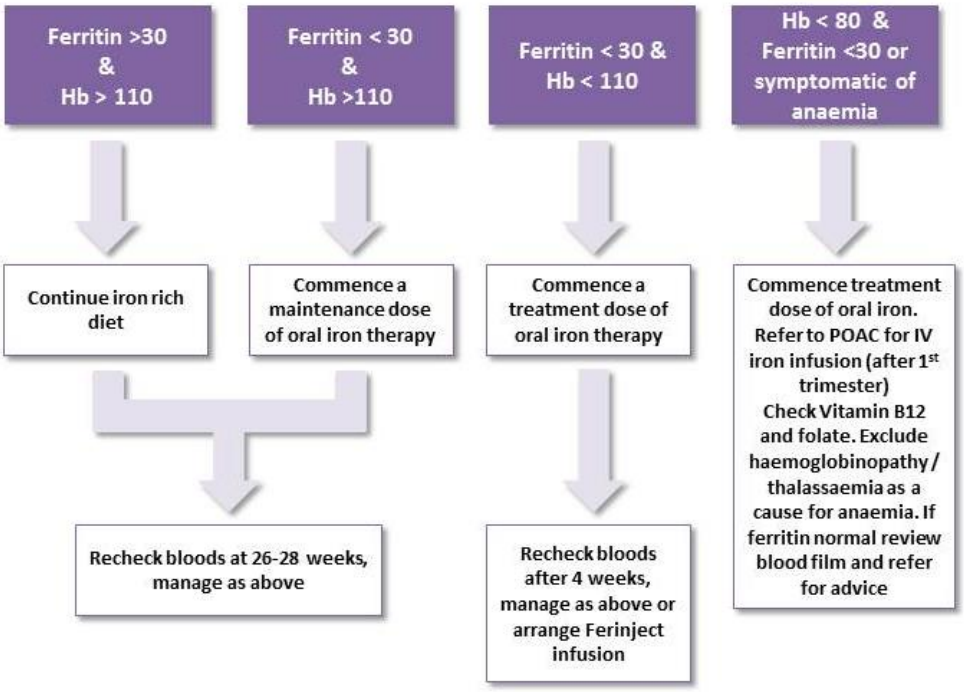
1. Community Pharmacy Services Agreement. Last updated: 07/05/2021. Accessed via [https://tas.health.nz/dhb-programmes-and-contracts/community-pharmacy-programme/icpsa/]
2. Midwifery Council of New Zealand, Pharmacy Council of New Zealand. Midwives and Pharmacists: Role and Responsibilities. January 2012. Accessed via [https://www.midwiferycouncil.health.nz/sites/default/files/for-midwives/MidwivesPcistsDec11%20new%20form.pdf]
3. New Zealand College of Midwives. Consensus Guideline: Midwife Prescribing. Revised 28/08/2014. Accessed via [https://www.midwife.org.nz/wp-content/uploads/2019/05/Midwife-Prescribing.pdf]
4. New Zealand Legislation. Medicines Regulations 1984. Reprint as at 01/04/2020. Accessed via [http://www.legislation.govt.nz]
5. Pharmac. Pharmaceutical Schedule Volume 27, number 1. April 2020. Electronic version accessed via [http://www.pharmac.govt.nz]
6. Pharmacy Council of New Zealand. Writing prescriptions – Best practice from a pharmacists' perspective. Not dated. Accessed via [https://www.midwiferycouncil.health.nz/sites/default/files/documents/midwives%20writing%20scripts.pdf]

COUNTIES MANUKAU HEALTH

Clinical Monographs

Anaemia

Diagnostic Tool and Differential Diagnosis:	Iron deficiency is the most common cause of anaemia in pregnancy and there is a higher prevalence of both iron deficiency and iron deficiency anaemia in Maori, Pacific and Indian women. A full blood count and ferritin should be checked on the first antenatal visit. Subsequent bloods are done at 26-28 weeks and again at 36 weeks. Anaemia can be defined as Hb <110g/L in the 1st trimester, Hb <105g/L in the 2nd and 3rd trimesters and Hb <100g/L in the postpartum period. A serum ferritin concentration < 15 microgram/L indicates iron depletion in all stages of pregnancy. Symptoms of iron deficiency are usually non-specific unless there is severe anaemia. Fatigue is the most common symptom. Women may complain of pallor, weakness, headache, palpitations, dizziness, dyspnoea and irritability. They may feel colder than usual. Storage iron is depleted before a fall in haemoglobin and as iron is an essential element, symptoms of iron deficiency may occur even without anaemia. Deficiency of vitamin B12 or folic acid can cause macrocytic anaemia. Vitamin B12 deficiency is most common in vegan women (vitamin B12 is contained in meat, eggs and dairy products), and levels can be checked if required.
Comments and Patient Advice:	▪ Advise all pregnant women to follow an iron rich diet (whole grain bread, red meat, poultry, fish, fortified cereals, vegetables and dried fruit) but be aware of cultural and religious practices which preclude some foods. ▪ Drink or eat food high in vitamin C (e.g. orange juice or kiwi fruit) to enhance the absorption of iron. ▪ Tannins in tea and coffee inhibit iron absorption therefore do not drink these beverages with meals or within 3 hours of taking iron. ▪ Some cereals, legumes and nuts as well as chapattis contain phytates which inhibit absorption of non-haem iron. Oxalates in spinach and rhubarb can also reduce absorption of non-haem iron. ▪ Stools may darken in colour and change in odour when taking iron.
Treatment Rationale:	Iron deficiency anaemia can contribute to maternal morbidity through effects on immune function with increased susceptibility or severity of infections, poor work capacity and performance. Anaemia increases the morbidity and potentially mortality from postpartum haemorrhage and low maternal ferritin is associated with low cord blood ferritin. Evidence suggests that maternal iron depletion increases the risk of iron deficiency in the neonate for their first 3 months of life. Impaired psychomotor and/or mental developments are well described in infants with iron deficiency anaemia. Once women have become iron deficient in pregnancy, it is not possible to ensure repletion through diet alone and therefore oral supplementation is required. Treatment should be considered when serum ferritin levels fall below 30 microgram/L as this indicates early iron depletion which will worsen unless treated.
Medications to Treat:	The flow chart on the following page outlines the options for the prevention and treatment of iron deficiency anaemia.



See the iron supplements monograph for advice on maintenance and treatment doses of **oral iron**. **Ferinject** (ferric carboxymaltose) is fully funded in community for patients who meet the specified POAC (Primary Options for Acute Care) and Special Authority criteria.

For further information and to check eligibility criteria, please see either Auckland HealthPathways (https://aucklandregion.communityhealthpathways.org/) or the POAC information page (https://www.poac.co.nz/page/ferinject/). Alternatively call POAC on 09 535 7218. Eligibility criteria is also included in the appendix of this guide for reference.

To apply for funding, the midwife or GP should complete the referral online at https://www.poac.co.nz/page/refer_iv_iron.

Cross Reference:

Folic Acid – page 87
Iron supplements – page 94
Appendix 1 – Ferric Carboxymaltose (Ferinject) Eligibility Criteria – page 131

Related Guidelines:

CMH Guideline: Iron deficiency anaemia in pregnancy and post-partum – prevention and management (updated July 2021) via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A25392

References

1. New Zealand Formulary accessed via [http://www.nzf.org.nz] on 13/12/2017
2. Ministry of Health. Food and Nutrition Guidelines for Healthy Pregnant and Breastfeeding Women. Revised November 2008. Accessed via [https://www.health.govt.nz/publication/food-and-nutrition-guidelines-healthy-pregnant-and-breastfeeding-women-background-paper]
3. Primary Options for Acute Care (POAC). IV Iron (Ferinject) for Iron Deficiency Anaemia [https://www.poac.co.nz/page/ferinject/] on 27/03/2018
4. Women's Health, CMH. Guideline: Iron deficiency anaemia in pregnancy and post-partum – prevention and management, last updated 07/2021 accessed via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A25392

Analgesia on Discharge after Caesarean Section

Diagnostic Tool and Differential Diagnosis:

Women should have analgesic medication prescribed prior to discharge (which usually occurs around days 4-5).

Comments and Patient Advice:

Women who receive adequate pain relief are able to recover more quickly. Bonding between mother and baby is facilitated. Lactation and breastfeeding is encouraged.

Women discharged from CMH post-caesarean section will usually be prescribed:

- Paracetamol
- Non-steroidal anti-inflammatory drug (NSAID) - either ibuprofen, diclofenac or celecoxib for a maximum of 7 days (preference as per Anaesthetist)
- +/- Tramadol for a maximum of 5 days **post-delivery**

Take paracetamol regularly to ensure good pain control; rest between feeds if possible.

If prescribing NSAIDs check for contraindications – see relevant monograph for further information. Some women may also be discharged with a short course of tramadol.

Codeine is no longer recommended in breastfeeding due to an infant fatality where the mother was an ultra-rapid metaboliser of codeine; see the Medsafe Prescriber Update in the references below for advice or contact the Medicines Information Service.

The FDA also issued a drug safety communication in April 2017 recommending against the use of tramadol in breastfeeding mothers due to the possible risk of adverse events in the infant. Medsafe have also issued an Alert Communication in response to this. **Tramadol should only be used in CMH for a maximum of 5 days post-delivery and therefore not all women will need to be discharged from hospital with tramadol.** If treatment with tramadol is clearly warranted, it should be used with caution in breastfeeding mothers and with close monitoring of the infant; parents and caregivers should be advised to watch closely for adverse effects in the infant or newborn which include slow, shallow, noisy or difficult breathing, excessive sleepiness, trouble breastfeeding or limpness.

Medications to Treat:

Paracetamol – see monograph for dosing information

Diclofenac – see monograph for dosing information

Ibuprofen – see monograph for dosing information

Celecoxib – see monograph for dosing information

Tramadol – For use in women with moderate to severe pain only. Laxatives may be required.

Cross Reference:	**Celecoxib –** page 63 **Diclofenac** – page 75 **Ibuprofen** – page 91 **Paracetamol** – page 122
Related Guidelines:	**CMH Guideline**: Analgesia and post-operative prescribing for women who have a caesarean section via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A341223 **CMH Guideline:** Laxative guidance for opioid-induced constipation prevention (adult) in **Appendix 4** (page 142)

References

1. FDA. Drug Safety Communication. "FDA restricts use of prescription codeine pain and cough medicines and tramadol pain medicines in children; recommends against use in breastfeeding women". 20/04/2017. Accessed via [https://www.fda.gov/downloads/Drugs/DrugSafety/UCM553814.pdf]
2. Medsafe. Codeine and Breastfeeding. Prescriber Update Dec 2010; 31(4); 26. Accessed via [http://www.medsafe.govt.nz/profs/PUArticles/CodeineAndBreastfeeding.htm]
3. Medsafe. Use of tramadol during breastfeeding. Trans-Tasman Early Warning System – Alert Communication. 7th July 2017. Accessed via [http://www.medsafe.govt.nz/safety/EWS/2017/UseOfTramadolDuringBreastfeeding.asp]
4. Women's Health, CMH. Guideline: Analgesia and post-operative prescribing for women who have a caesarean section. Last updated 27/03/2017. Accessed via [http://cmdhbdocuments/docsdir/opendocument.aspx?id=A341223]

Bacterial Vaginosis

Diagnostic Tool and Differential Diagnosis:	Vaginal swab Bacterial vaginosis is not considered to be a sexually transmitted infection (STI). It occurs when the normal vaginal flora have been replaced with anaerobes. The risk seems to be increased in those with multiple sexual partners, douching, use of intrauterine contraceptive devices (IUCDs) and smoking. A large number of women are asymptomatic. Clinical diagnosis requires three of the following: ▪ Homogenous grey-white, adherent discharge ▪ "Clue" cells on microscopy ▪ pH<4.5 ▪ Fishy odour
Comments and Patient Advice:	Bacterial vaginosis may predispose the patient to premature labour. It has also been associated with endometritis and Pelvic Inflammatory Disease (PID) after invasive procedures. Symptomatic patients and those with a history of premature delivery should be treated, but the value of screening and treating asymptomatic women is still debated. The placement of an IUCD should be avoided in symptomatic women. Avoid douching. Swabs should be repeated 4 weeks after treatment. Ideally, treatment should be avoided in the first trimester of pregnancy, unless recommended by a specialist.
Treatment Rationale:	Treatment may help to prevent premature delivery, particularly in women with a history of preterm labour. The partner does not need to be treated unless balanitis is present.
Medications to Treat:	**Metronidazole** (oral) – see monograph for dosing information. (Clindamycin may alternatively be indicated when recommended by a specialist)
Cross Reference:	**Clindamycin** – page 65 **Metronidazole** – page 107

References

1. New Zealand Sexual Health Society. Sexually Transmitted Infections Summary of Guidelines, updated July 2017. Accessed via [https://www.nzshs.org/docman/guidelines/best-practice-guidelines/231-sexually-transmitted-infections-summary-of-guidelines-2017/file]
2. Sobel JD. Bacterial Vaginosis: Treatment. Literature review current through May 2017; topic last updated 15/06/2017. Accessed via UpToDate [http://www.uptodate.com]

Chlamydia

Diagnostic Tool and Differential Diagnosis:	About 70% of women are asymptomatic. If symptoms occur, they include vaginal discharge, lower abdominal pain, pain with sexual intercourse and discomfort on urination On examination, cervical discharge or cervicitis may be seen. Mid-stream urine (MSU) may show sterile pyuria.
Comments and Patient Advice:	Women are screened antenatally for genital infections. For chlamydia, this includes an endocervical swab using a "chlamydia swab". If the woman is not having a pelvic examination, a high vaginal self-swab is the recommended screening test. If the chlamydia test is positive, the patient and their partner / sexual contacts should avoid sex or use a condom for 7 days after initiation of treatment and until 7 days after all sexual contacts have been treated. Co-infection with gonorrhoea and/or trichomonas is not excluded and swabs need to be collected. Partners / sexual contacts should be referred for a sexual health check and treatment at their GP, the Family Planning Association (FPA) or Auckland Sexual Health Service (ASHS), 12 Waddon Place, Mangere behind Mangere Health Centre; phone (09) 255 5172. Patient information leaflets or guidelines for health professionals can be downloaded from the ASHS website http://www.ashs.org.nz or the New Zealand Sexual Health Society (NZSHS) website http://www.nzshs.org
Treatment Rationale:	The woman is at risk of PID. The partner also needs to be treated or the woman will be re-infected. Pregnant women should have a test of cure no sooner than 5 weeks after initiation of antibiotic therapy and should be retested at the beginning of the third trimester as a test of re-infection. Retests conducted before 4 weeks may be falsely positive if there are still non-viable bacteria present. Baby is at risk of eye and chest infections; if the chlamydia test is positive at, or soon after, delivery, the baby has a 50% chance of also being infected. If the baby develops any eye or respiratory symptoms during the first 12 weeks, they require specific chlamydia testing also.
Medications to Treat:	**Azithromycin** (oral) – see monograph for dosing information For patients with azithromycin allergy, use **amoxicillin** (oral). NB may be less effective – see monograph for dosing information
Cross Reference:	**Amoxicillin** – page 41 **Azithromycin** – page 48

References

1. New Zealand Sexual Health Society. Chlamydia Management Guidelines, updated September 2017. Accessed via [http://www.nzshs.org/docman/guidelines/management-of-sexual-health-conditions/152-chlamydia-guideline/file]

Constipation

Diagnostic Tool and Differential Diagnosis:	Dry hard stools which are difficult to pass. Constipation may also be associated with, and exacerbate, both haemorrhoids and anal fissures.
Comments and Patient Advice:	Progesterone causes the digestive tract to slow down. As a consequence, more water is absorbed in the colon, making stools hard. Iron supplements, which a number of women may take whilst pregnant, can also cause constipation. Drink sufficient water, eat as much roughage in the form of fruit, vegetables and fibre and walk briskly for 20 minutes or more each day. Kiwifruit and prunes are effective.
Treatment Rationale:	Assist motility of gut with regular exercise. Increase fluid intake to counteract increased fluid absorption in the gastrointestinal tract.
Medications to Treat:	**Bulk forming laxatives** – these are the agents of first choice for treating constipation in pregnancy; see monograph for dosing information **Lactulose** – see monograph for dosing information **Docusate or Laxsol (docusate + sennoside B)** – see monograph for dosing information
Cross Reference:	**Bulk Forming Laxatives** – page 53 **Docusate** – page 77 **Lactulose** – page 97 **Laxsol** – page 77 **Haemorrhoids** – page 21 **Haemorrhoidal Preparations** – page 89
Related Guidelines:	**CMH Guideline:** Laxative guidance for opioid-induced constipation prevention (adult) in **Appendix 4** (page 142). (NB this guideline should only be referred to for the prevention of opioid-induced constipation)

References

1. Nelson-Piercy C. Handbook of Obstetric Medicine. 5th edition. Florida: CRC Press; 2015
2. New Zealand Formulary accessed via [http://www.nzf.org.nz] on 15/12/2017

Contraception

Diagnostic Tool and Differential Diagnosis:

Please refer to the World Health Organisation (WHO) Medical Eligibility Criteria for Contraceptive Use at http://www.who.int, The Faculty of Sexual and Reproductive Healthcare guidelines at http://www.fsrh.org or New Zealand Aoteroa's guidance on contraception at https://www.health.govt.nz/publications for further information such as considering BMI, BP and other conditions to weigh out the risks and benefits of each method when providing advice on contraception.

Comments and Patient Advice:

Options for postnatal contraception should be discussed with all women. The CMH leaflet "Options for Family Planning After Baby" is a useful resource to aid discussion of the various options. Patient information is also available from New Zealand Family Planning at http://www.familyplanning.org.nz

Medications to Treat:

Long acting reversible contraception (LARCs)

These are generally the first choice agents in postpartum and breastfeeding women. Refer to the individual medicine monographs in the next section for information regarding when to start. Examples include

- IUCD – e.g. Choice TT380 (lasts up to 10 years)
- Levonorgestrel implants – e.g. Jadelle (lasts up to 5 years)
- Depot medroxyprogesterone acetate – e.g. Depo-Provera
- Levonorgestrel intrauterine devices – e.g Mirena (lasts up to 5 years), Jaydess (lasts up to 3 years)

Oral Contraceptive Pill

- Progestogen-only pill (POP) - may be offered as an alternative if LARCs are declined or not suitable for the woman. See Progestogen-Only Pill monograph for further details.

- Combined oral contraceptive (COC) - Women who choose not to breastfeed may commence the combined oral contraceptive on day 21 postpartum if she satisfies the WHO eligibility criteria. For breastfeeding women, the COC should usually not be started until 6 months postpartum but in some circumstances it could be considered for those who are 6 weeks postpartum. See Combined Oral Contraceptive Pill monograph for further details.

Vasectomy

Free vasectomies are being offered to men according to the following eligibility criteria:

- Men who are residing within the CMH catchment area; and
- are eligible to receive publicly funded health services; and
- are unable to access private medical insurance; and
- are certain their family is complete; and
- have a partner/spouse currently enrolled with CMH's maternity service or seeking termination of pregnancy.

The procedure will take place at Snip Vasectomy Clinic, Family Planning Offices, Level 3, Westfield Shopping Centre, Manukau. Send a referral email to enquiries@snip.co.nz including the following information:

1. Man's name, date of birth, full address
2. Phone number
3. **The default is for men to call the clinic.** If this is not the case, please advise when the clinic should call him. This is important to avoid miscommunication.
4. Any other relevant medical information
5. NHI if known
6. Your name

Following a referral, men should be asked to contact Snip Vasectomy within 30 days on 0800 304 729 (or the clinic will contact the man if this has been stipulated in the referral email) to arrange a phone counselling appointment.
For further information visit http://www.snip.co.nz or email enquiries@snip.co.nz or call 0800 304 729. Patient information on vasectomies in general, is available from: https://www.familyplanning.org.nz/advice/contraception/vasectomy

Lactational Amenorrhea Method (LAM)
Although the family planning options discussed above are preferred at CMH, some breastfeeding women may choose to use LAM. This method can be 98% effective where the following THREE factors are strictly met:

- Amenorrhoea since lochia ceased AND
- Baby less than 6 months of age AND
- Baby is **exclusively** breastfed (no long intervals between feeds day or night e.g. > 4 hours during the day and > 6 hours at night)

If the woman does not meet all of these criteria then she must be offered an alternative form of contraception. Women who choose to use LAM should be told that contraceptive efficacy will be reduced when the frequency of breastfeeding decreases, when menstruation returns or when they are >6 months postpartum.

Condoms
Condoms should be offered as a back-up method.

Cross Reference:

Combined Oral Contraceptive Pill – page 69
Levonorgestrel Implant (Jadelle) – page 98
Levonorgestrel Intrauterine Devices (Mirena, Jaydess) – page 101
Medroxyprogesterone Acetate (Depo-Provera) – page 104
Non-Hormonal Contraceptives – page 117
Progestogen-Only Pill – page 124

References

1. CMH. FAQs – Free Vasectomy Extended Pilot Programme 24/09/2014
2. CMH. Women's Health Division Patient Leaflet. Options for Family Planning After Baby. Version 1.0 September 2013.
3. Faculty of Sexual and Reproductive Healthcare. FSRH Guideline: Contraception After Pregnancy, January 2017. Accessed via [https://www.fsrh.org/standards-and-guidance/documents/contraception-after-pregnancy-guideline-january-2017/contraception-after-pregnancy-guideline-final27feb.pdf]
4. Guillebaud J, MacGregor A. Contraception your questions answered. 6th edition. Edinburgh: Elsevier; 2013
5. Ministry of Health. New Zealand Aotearoa's guidance on Contraception, December 2020. Accessed via https://www.health.govt.nz/publication/new-zealand-aotearoas-guidance-contraception
6. WHO. Medical eligibility criteria for contraceptive use. 5th edition 2015. Accessed via [https://www.who.int/publications/i/item/9789241549158]

Dry Itchy Skin

Diagnostic Tool and Differential Diagnosis:	Some women suffer from very dry, itchy skin during pregnancy. It is believed that this is due to changes in hormone levels.
Comments and Patient Advice:	▪ Use a soap substitute instead of soap. For hygiene reasons, this is for the woman's personal use only. ▪ Apply emollients to the skin at the end of the daily shower or bath. ▪ Emollients may be reapplied as required, several times a day. ▪ Avoid using calamine lotion as this can worsen the condition.
Treatment Rationale:	The skin is irritated by the lack of sebum to the skin. Soothing the skin can prevent further complications and make it more tolerable for the woman.
Medications to Treat:	Numerous topical agents are available for purchase or on prescription.
Cross Reference:	**Bath Oils and Soap Substitutes** – page 51 **Emollients** – page 81

Dry Skin in the Neonate

Diagnostic Tool and Differential Diagnosis:	Some babies, especially those born post-dates, have dry cracked skin.
Comments and Patient Advice:	▪ Bathe the baby but avoid soap or perfumed bath products. Aqueous cream can be used as a soap substitute but must be washed off the skin. ▪ Fatty Cream or cetomacrogol cream can be used as a moisturiser in between baths if the skin looks dry. ▪ Use a clean hand to remove required amount of cream from the pot or jar in order to prevent contamination of the cream. ▪ Natural oils such as almond or coconut oil, may be applied to the skin but not on the fingers/hands (in case baby puts them in his mouth) or the face. They may also be added to baths.
Treatment Rationale:	The skin, when dry and cracked, could easily become infected. Parents may try to avoid bathing the baby because of the dry skin, thereby increasing the risk. Bathing moisturises the new skin; dead skin cells are shed in the water and through drying the skin with a soft bath towel.
Medications to Treat:	Numerous topical agents are available for purchase or on prescription.
Cross Reference:	**Bath Oils and Soap Substitutes** – page 51 **Emollients** – page 81

Endometritis

Diagnostic Tool and Differential Diagnosis:	Fundus tender on palpation, lochia may be offensive, general malaise may be evident. The source of puerperal infection may be complex e.g. mastitis, urinary, endometritis, perineal trauma Note: when causative organism is haemolytic streptococcus, the lochia will be scanty only 24 hours after delivery.
Comments and Patient Advice:	▪ **Temperature ≥ 38°C:** discuss with the obstetric consultant of the day as patient may require hospital admission for sepsis screen and IV antibiotics ▪ **Temperature < 38°C:** take vaginal swab (wet x 1) and take to laboratory for processing. If sent to Labtests, the clinical reason for the swab must also be written on the sample or it won't be processed. If taking to Middlemore lab, please write "Urgent" on the form. Results will take 48 hours. Start patient on antibiotics immediately and check if organism is sensitive when results are through. Organism may not always be apparent but signs and symptoms should be subsiding over the 48 hour period. NB: DHB and community laboratory may have different swab requirements, please check with local providers.
Treatment Rationale:	Patients at risk are those who are anaemic, have had a traumatic or emergency operative delivery, have a history of premature or prolonged rupture of membranes, adopt poor hygiene practices, have bacterial vaginosis or have had manual removal of the placenta. Treatment needs to be started immediately or there is an increased risk of haemorrhage, maternal sepsis or morbidity.
Medications to Treat:	Oral antibiotics may be prescribed for mild cases; parenteral antibiotics may be required for more severe cases or for women with a fever. **Amoxicillin/clavulanic acid (oral):** 7 day course. See monographs for dosing information **Patients with penicillin-allergy use erythromycin and metronidazole (oral)**: 7 day course. See monographs for dosing information
Cross Reference:	**Amoxicillin/Clavulanic Acid** – page 43 **Erythromycin** – page 83 **Metronidazole** – page 107 **Postpartum Fever** – page 28 **Appendix 2** – CMH Poster: Penicillin Allergy – page 133 or http://cmdhbdocuments.healthcare.huarahi.health.govt.nz/docsdir/opendocument.aspx?id=A1386738

Haemorrhoids

Diagnostic Tool and Differential Diagnosis:	Haemorrhoids are dilated rectal veins that may protrude through the anus. Usually they do not occur until the second trimester. Women with rectal bleeding should be referred to their family doctor for further investigation.
Comments and Patient Advice:	▪ Avoid constipation by increasing fluid intake, eating fruit, vegetables and bran and taking exercise. ▪ Apply (covered) ice pack to affected area for short periods of time e.g. 20 minutes every 4 hours ▪ Take regular paracetamol. ▪ Take care to avoid perineal stitches when applying ointment. ▪ If the haemorrhoid has thrombosed, gently massage the ointment onto the affected area. ▪ Consider manual reduction of haemorrhoids or refer woman to her GP if necessary
Treatment Rationale:	Haemorrhoid pain can be very severe, and fear of pain when passing a motion can lead to constipation. Ointments and suppositories containing corticosteroids or local anaesthetics are available.
Medications to Treat:	**Ultraproct suppositories or ointment:** see monograph for prescribing information **Proctosedyl suppositories or ointment:** see monograph for prescribing information
Cross Reference:	**Haemorrhoidal preparations** – page 89

Heartburn

Diagnostic Tool and Differential Diagnosis:	Heartburn is a burning sensation just behind the breastbone, sometimes with regurgitation of stomach acid into the mouth. It happens most commonly when lying down, coughing, straining when passing a stool or when lifting heavy weights. Pre-eclampsia can mimic heartburn; always check blood pressure before considering heartburn in women of 20 weeks gestation or more.
Comments and Patient Advice:	▪ A reduction in oesophageal sphincter pressure and an increase in gastric emptying time during pregnancy means that pregnant women are particularly prone to gastro-oesophageal reflux. ▪ To prevent stomach over-filling, eat smaller meals. Learn to snack on nutritious food and split meals if they are too filling. ▪ Avoid drinking at mealtimes ▪ Take a walk after a meal ▪ Avoid foods which trigger symptoms ▪ Sleep propped up with several pillows.
Treatment Rationale:	Antacids will help to neutralise the stomach acid, thereby easing the burning sensation. Alginates form a floating "raft" on top of the stomach contents, preventing reflux of stomach contents and relieving inflamed oesophageal tissue. Omeprazole reduces gastric acid output and may be required in some women with severe, intractable cases.
Medications to Treat:	**Antacids:** None currently funded but many different brands and formulations are available for purchase **Alginates:** Gaviscon or Acidex **Omeprazole**
Cross Reference:	**Antacids** – page 45 **Alginates** – page 40 **Omeprazole** - page 120

Iodine Supplements in Pregnancy

Comments and Patient Advice:	Iodine deficiency is a problem in New Zealand, particularly in pregnant and breastfeeding women when dietary requirements are increased. Iodine is essential for normal growth and brain development. The Ministry of Health (MoH) recommends pregnant and breastfeeding women take supplements of iodine containing 150 micrograms daily, as well as eat foods which are important sources of iodine. Iodine supplements should be started when a pregnancy is confirmed and continued throughout the duration of the pregnancy and breastfeeding. *Folic acid and Iodine* (HE4147) information leaflets can be ordered at: https://www.healthed.govt.nz/
Medications to Treat:	**Iodine (oral):** 150 micrograms daily during pregnancy and breastfeeding.
Cross Reference:	**Iodine** – page 93

References

1. HealthEd. Folic acid and Iodine information leaflet, 01/06/2010. Accessed via [https://www.healthed.govt.nz/]
2. New Zealand Formulary accessed via [http://www.nzf.org.nz] on 15/12/2017
3. Ministry of Health. Iodine: Questions and Answers accessed via [http://www.health.govt.nz/our-work/preventative-health-wellness/nutrition/iodine], page last updated 05/10/2016

Lactation Problems

Diagnostic Tool and Differential Diagnosis:	▪ Assess that baby is correctly latched on to the breast. ▪ Use breast compressions to increase the intake of milk. ▪ Express milk after feeds to increase the supply. ▪ Correct sucking problems. ▪ Consider whether the use of a nipple shield is having an effect ▪ Milk supply may start to decrease when the mother is expressing long term or to diminish when she is not fully breastfeeding
Comments and Patient Advice:	After assessing all possible causes (as above), offer appropriate advice; a galactogogue may be required. It may take 3-4 days to show any effect in some women. Encourage night time feeds.
Treatment Rationale:	If not treated, the mother might give up breastfeeding and use formula. Domperidone increases levels of prolactin, a hormone which increases milk supply.
Medications to Treat:	**Domperidone (oral) -** See monograph for dosing, contraindications and cautions. **Note that domperidone is unlicensed as a galactogogue therefore the NZCOM recommend that midwives refer the woman to her family doctor for prescription.** Right to give informed consent – refer to the Medsafe statement about the "Use of Unapproved Medicines and Unapproved Use of Medicines" at http://www.medsafe.govt.nz/profs/riss/unapp.asp for further information.
Cross Reference:	**Domperidone** – page 78

Mastitis

Diagnostic Tool and Differential Diagnosis:	The woman will present with reddened, painful breasts and elevated temperature and may also be experiencing chills, headache, flu-like symptoms, general malaise, cracked nipples and systemic illness. These women may have a past history of mastitis.
Comments and Patient Advice:	If temperature is persisting above 38°C despite treatment, discuss with the on-call obstetric consultant as hospital admission for sepsis screen and IV antibiotics may be necessary. The woman should be advised to **continue breastfeeding** using very early feeding cues to help reduce the blockage and keep the milk flowing well. Alternate the feeding positions if necessary (i.e. from "football" to "cradle"). Wake the baby to feed if the breasts feel very full and the baby is still asleep. If pain is inhibiting let-down of milk, advise the woman to begin feeding on the unaffected breast, then switch to the affected breast after milk let-down. Ensure that the breast milk is drained from the breast frequently and regularly; this may involve expressing the milk if the baby is not feeding well. Gently massage the affected area during expression and breastfeeding. Ensure plenty of rest Failure to remove milk from the affected breast may predispose the woman to a lactation abscess. Scarring from previous mastitis makes the woman susceptible to further episodes of mastitis.
Treatment Rationale:	In lactating women, mastitis is almost always caused by *Staphylococcus aureus*. Flucloxacillin is the drug of choice; erythromycin is a suitable alternative in penicillin-allergic patients. The WHO recommend breast-milk culture and sensitivity testing if there is no response to antibiotics within 2 days, if mastitis recurs, if it is hospital-acquired or in severe and unusual cases.
Medications to Treat:	**Flucloxacillin (oral) for 10 – 14 days** – see monograph for dosing information OR **Erythromycin (oral) for penicillin allergic patients, for 10 – 14 days** – see monograph for dosing information
Cross Reference:	**Erythromycin** – page 83 **Flucloxacillin** – page 84 **Postpartum Fever** – page 28 **Appendix 2** – CMH Poster: Penicillin Allergy – page 133 or http://cmdhbdocuments.healthcare.huarahi.health.govt.nz/docsdir/opendocument.aspx?id=A1386738

References

1. Ministry of Health. Blocked Ducts and Mastitis. Last updated 20/01/2017. Accessed via http://www.health.govt.nz/your-health/conditions-and-treatments/diseases-and-illnesses/blocked-ducts-and-mastitis
2. Ministry of Health. Mastitis and breast abscesses (for health practitioners). Last updated 07/02/2014. Accessed via http://www.health.govt.nz/our-work/life-stages/breastfeeding/health-practitioners/mastitis-and-breast-abscesses

Nappy Rash

Diagnostic Tool and Differential Diagnosis:	Red or inflamed skin in nappy area
Comments and Patient Advice:	▪ Always change the nappy as soon as it is wet or soiled. ▪ Clean the skin creases thoroughly and expose the bottom to the air whenever possible. Do not use baby wipes for cleaning, water is fine. ▪ Do not wash baby's skin with soap except at bath time ▪ Apply a barrier cream with each nappy change. ▪ Avoid preparations which contain fragrance or other ingredients with irritant or allergic potential. ▪ Use a clean hand to remove required amount of cream from the pot or jar in order to prevent contamination of the cream with faecal matter.
Treatment Rationale:	Bacteria on the skin break down urine to form ammonia which can burn the surface of the skin. The baby's skin then becomes sore which can range from a mild redness to inflamed broken and ulcerated skin. Constant use of soap and water dries the skin.
Medications to Treat:	Barrier preparations such as **zinc and castor oil ointment.** **Miconazole cream** or **clotrimazole cream** if secondary fungal infection occurs. A mild corticosteroid cream such as hydrocortisone 0.5% (not funded) or 1% can be used if inflammation is causing discomfort in those over 4 weeks of age (avoid in neonates) but treatment should be limited to 5 - 7 days . It should be applied sparingly (before applying the barrier preparation) and discontinued as soon as the inflammation subsides.
Cross Reference:	**Barrier Preparations** – page 50 **Clotrimazole** – page 67 **Miconazole** – page 109

Nausea and Vomiting during Pregnancy

Diagnostic Tool and Differential Diagnosis:

Nausea and vomiting in early pregnancy are normal.

Symptoms usually start between five to six weeks gestation and peaks around week 11. Persistent nausea and vomiting beyond week 20 is uncommon, and symptoms starting at 12 weeks gestation or beyond are unlikely to be caused by the pregnancy. In these situations, an alternative diagnosis should be sought.

Hyperemesis gravidarum is a severe intractable vomiting that may result in a nutritional deficiency state which can lead to fetal growth restriction and Wernicke's encephalopathy from thiamine deficiency.

Comments and Patient Advice:

The aim with management of troublesome nausea and vomiting during pregnancy is to maintain a healthy pregnancy and fetal development, and to prevent dehydration and nutritional deficiencies.

Non-pharmacological management may be all that is required for those with mild symptoms.

- Women may benefit from eating a snack of plain biscuits or dry toast before rising, and eating small, frequent, low-fat, carbohydrate-rich meals during the day.
- Avoid possible triggers such as hunger, lack of sleep, dehydration, and strong smells
- **Ginger** or **pyridoxine** may be helpful for nausea, and are generally considered safe during pregnancy.
  NB: **Pyridoxine** for prophylaxis of nausea during pregnancy is an **unapproved indication** in New Zealand, and long-term use of 200mg or more daily should be avoided as it may be neurotoxic.

Medications to Treat:

If symptoms are troublesome and not managed by non-pharmacological intervention, antiemetics such as metoclopramide, prochlorperazine, cyclizine and promethazine can be considered. Ondansetron may be appropriate as a second-line option (unapproved indication) where symptoms are ongoing and benefits outweighs the risks; Please see Medsafe Prescriber Update for information regarding the small increased risk of oral cleft with first-trimester use and obtaining informed consent.
Medsafe Prescriber Update 41(2): 27-28, June 2020
https://medsafe.govt.nz/profs/PUArticles/June2020/Ondansetron-oral-cleft-defects.html

Oral or intravenous fluids should be given as necessary to maintain hydration, and electrolytes and vitamins replaced as clinically indicated.

- **Thiamine** to prevent Wernicke's encephalopathy
- **Folic acid** dose increased to 5mg daily until the end of first trimester
- **Vitamin D** supplement considered for women at risk of vitamin D deficiency (please refer to Vitamin D Supplementation in Pregnancy monograph)

Please refer to New Zealand Formulary for further information.

References

1. New Zealand Formulary v106 01 April 2021 accessed via [https://www.nzf.org.nz]
2. Medsafe Prescriber Update 41 (2): 27-28 June 2020 accessed via [https://www.medsafe.govt.nz/profs/PUArticles/June2020/Ondansetron-oral-cleft-defects.html]

Postpartum Fever

Consider differential diagnoses in women with postpartum fever:

Cross Reference:	**Endometritis** – page 20 **Mastitis** – page 25 **Urinary Tract Infection** – page 32

Smoking

Comments and Patient Advice:	The effects of smoking on smokers and their families have been well documented. Smoking has an impact on fertility, as well as placenta and fetal development. It increases the risk of maternal anaemia, fetal hypoxia, spontaneous miscarriage, small for dates, preterm delivery and stillbirths. Babies born into smoking households have a much higher risk of sudden infant death.
Treatment Rationale:	For effective change to smoking in pregnancy, highly personalised and supportive education programs are desired, whilst taking into account the social environment of the smokers.
Medications to Treat:	**Nicotine replacement therapy (NRT)** – See monograph for details of products available and their doses. The monograph also contains details of where to refer the woman for further smoking cessation support. **Vaping (e-cigarette)** - Vaping is not encouraged during pregnancy as there is limited information about the effects of vaping (e-cigarettes) in pregnancy. Vaping is not harmless, but it is likely to be much less harmful than smoking while pregnant and it could be an effective way of quitting smoking when accompanied by stop-smoking support. If pregnant woman is considering vaping, it is important to discuss risks and benefits of vaping with midwife, doctor or local stop smoking service.
Cross Reference:	**Nicotine Replacement Therapy** – page 111

References

1. Health Navigator NZ. What you need to know about vaping accessed via [https://www.healthnavigator.org.nz/healthy-living/e/e-cigarettes-and-vaping/] on 24/04/2021
2. Ministry of Health. Vaping Facts accessed via [https://vapingfacts.health.nz/] on 24/04/2021

Thrush and Breastfeeding

Diagnostic Tool and Differential Diagnosis:	The woman may complain of stabbing pain in the breasts not associated with feeding; there are usually no other signs of mastitis. Thrush may be evident in the baby's mouth or on the tongue.
Comments and Patient Advice:	Wash nipples in warm water or normal saline and dry with a clean cloth. Apply an antifungal cream to nipples after breastfeeding; if any residue remains on the nipple at the time of the next feed, wash the nipple gently prior to feeding. If baby is being given expressed milk, the equipment must be cleaned appropriately as per the Ministry of Health guidelines for feeding equipment or as per manufacturer instructions for expressing equipment.
Treatment Rationale:	Causal organism is usually *Candida albicans* which requires antifungal treatment. As well as prescribing topical treatment to be applied to the breast, the baby will also require oral treatment.
Medications to Treat:	Mother: **Miconazole 2% cream** – see monograph for dosing information Baby: **Nystatin suspension** – see monograph for dosing information
Cross Reference:	**Miconazole** – page 109 **Nystatin** – page 118

Trichomoniasis

Diagnostic Tool and Differential Diagnosis:	Endocervical swab or examination of vaginal fluid in a sexual health clinic. It is most common amongst sexually active females aged 16-35 years. Somewhere between 10-50% of women are asymptomatic. Those with symptoms may experience copious vaginal discharge which is greenish in colour, frothy and watery and with an unpleasant "fishy" smell. The vaginal opening and vulva may feel uncomfortable, hot and swollen with redness and inflammation that can extend to the upper thighs. The woman may also experience some itching, dysuria and some discomfort when walking.
Comments and Patient Advice:	Women are screened antenatally for genital infections. Trichomonas often occurs with other STIs so consideration should be given to empirically treating chlamydia. Partners should be referred for a sexual health check and treatment; refer to their GP, FPA or ASHS, 12 Waddon Place, Mangere behind Mangere Health Centre; phone (09) 255 5172. The patient and their partner / sexual contacts should avoid sex or use a condom for 7 days after initiation of treatment and until 7 days after all sexual contacts have been treated. A few women may suffer from recurrent trichomoniasis even after they and their partner have been treated. Treatment of recurrent trichomoniasis should be by a specialist. Patient information leaflets or guidelines for health professionals can be downloaded from the ASHS website http://www.ashs.org.nz or NZSHS http://www.nzshs.org
Treatment Rationale:	Mother to child transmission during delivery is possible but usually has no adverse consequence. Infection may be associated with an increase in perinatal complications such as a post-lower segment caesarean section infection, premature rupture of membranes or pre-term birth, but a definite causal association is not yet proven.
Medications to Treat:	**Metronidazole (oral)** – refer to monograph for dosing information.
Cross Reference:	**Chlamydia** – page 14 **Metronidazole** – page 107

References

1. New Zealand Sexual Health Society. Trichomoniasis Management Guidelines, updated February 2015. Accessed via [http://www.nzshs.org/docman/guidelines/management-of-sexual-health-conditions/177-trichomoniasis-guideline/file]

Urinary Tract Infection

Diagnostic Tool and Differential Diagnosis:	Early urinary tract infection (UTI) is often difficult to detect in pregnancy. It can cause nausea and contribute to hyperemesis. All pregnant women at the first booking appointment should have an MSU check to eliminate urinary infection. Maori women are particularly at risk of UTI. If you suspect a UTI, obtain an MSU and start empirical treatment if symptomatic; ensure that the MSU sensitivities are followed up in case the antibiotic needs to be changed. If temperature is elevated, discuss with the obstetric consultant on call. The temperature could reach as high as 40^{o}C and rigors may be present. Urine may have a strong "fishy smell" and patients may complain of dysuria and frequent micturition. If the woman experiences 3 UTIs during pregnancy, she should be referred for specialist review. Asymptomatic bacteriuria should be treated – see CMH guideline in Appendix 3.
Comments and Patient Advice:	▪ Advise patient to increase fluid intake and complete antibiotic therapy. ▪ They should feel an improvement within 3 days. ▪ Repeat a follow-up MSU 2 weeks after treatment. ▪ Women with a strong history of UTI should have their urine checked monthly during pregnancy. ▪ A positive urine culture for Group B Streptococcus (GBS) at any gestation is an indication for prophylactic antibiotics in labour as well as immediate treatment with antibiotics.
Treatment Rationale:	70% of women with frequency and dysuria will have bacterial cystitis. Red blood cells are present in half of those with cystitis. Pyuria is symptomatic of UTI. Sterile pyuria may indicate chlamydia.
Medications to Treat:	See CMH guideline mentioned below for details as the choice of agent varies.
Cross Reference:	**Appendix 2** – CMH Poster: Penicillin Allergy – page 133 or http://cmdhbdocuments.healthcare.huarahi.health.govt.nz/docsdir/opendocument.aspx?id=A1386738 **Amoxicillin** – page 41 **Amoxicillin/Clavulanic Acid** – page 43 **Cefaclor** – page 59 **Cefalexin** – page 61 **Nitrofurantoin** – page 115 **Trimethoprim** – page 127 **Postpartum Fever** – page 28
Related Guidelines:	**CMH Guideline**: Urinary Tract Infection in Pregnancy in **Appendix 3** (page 134) or via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A2815 for the latest version.

References

1. Women's Health, CMH. Guideline: Urinary Tract Infection in Pregnancy, last updated 13/02/2014. Accessed via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A2815

Vaginal Thrush/Candidiasis

Diagnostic Tool and Differential Diagnosis:	Vaginal candidiasis is caused by *Candida albicans* and occasionally by other yeasts. Diagnosis is suggested by pruritus with erythema and a cheesy, white discharge, which is not offensive. The pH is usually <4.5. 10-20% of women have candida species in the vagina and if asymptomatic do not need to be treated.
Comments and Patient Advice:	Frequently occurs in diabetes, pregnant women, immunosuppressed patients or those taking antibiotics. ▪ Use a mild soap or soap substitute on the genital area. ▪ Wear cotton underpants rather than synthetic. ▪ Wear loose trousers. ▪ Don't wear pantyhose without underwear but avoid pantyhose if possible. ▪ Salt baths can be helpful to alleviate any symptoms. ▪ Complete the course of medicine even if symptoms disappear before completion. ▪ Candidiasis is not ordinarily acquired sexually but partners may suffer from balanitis which will need treatment from their family doctor. ▪ Use lubricant for sexual intercourse.
Medications to Treat:	**Miconazole or clotrimazole** – see monographs for details of preparations and doses.
Cross Reference:	**Clotrimazole** – page 67 **Miconazole** – page 109 **Nystatin** – page 118

Vitamin D Supplementation in Pregnancy

Comments:

There is little current evidence that vitamin D supplementing is beneficial for those who are not vitamin D deficient. In New Zealand it is not cost-effective to undertake widespread blood testing as vitamin D testing is considerably more expensive than the cost of treatment. Therefore, it is important to use a risk factor profile to identify those at greatest risk of vitamin D deficiency who may benefit from supplementation.

Women at high risk of vitamin D deficiency include:

- Those who have darker skin – this includes women from Africa, Indian subcontinent, Middle East as well as Maori and Pacific women
- Those who completely avoid sun exposure for religious, personal or medical reasons
- Those who have liver or kidney disease, or are on certain medications that affect vitamin D levels
- Those who live in southern regions of New Zealand in winter

Data from the 2008/09 New Zealand Adult Nutrition Survey show that over one-third of women of childbearing age (15-44 years) have vitamin D levels below the recommended level. Māori and Pacific women had a significantly lower mean level of vitamin D than non-Māori and non-Pacific women.
Maori and Pacific people make up high percentage of the total Counties Manukau population and these women could potentially benefit from vitamin D supplementation.

According to the Ministry of Health companion statement, updated in December 2020, pregnant women at high risk of vitamin D deficiency are recommended to consider vitamin D supplementation, with the aim to ensure that the foetus has sufficient vitamin D and is not born vitamin D deficient. A dose between 10 – 15 microgram (400 – 600 international units) per day is recommended and can be achieved with the following fully subsidised vitamin D preparation:

- Colecalciferol oral liquid (188 microgram per ml/7,500 international units IU/ml), Puria® vitamin D drops
    - available and subsidised for use in both the community and the hospital
    - a dose of one drop taken orally every day will provide approximately 10 microgram (400 IU)/day

Colecalciferol capsule 1.25 mg (50,000 IU) which is designed to be taken once a month, is **not recommended for widespread use** in pregnant women due to lack of evidence of its safety in pregnant women who may not be vitamin D deficient. This dose is also higher than that recommended in international population-level guidelines. It may be considered appropriate for some women who have a documented vitamin D deficiency.

Other (non-subsidised) vitamin D supplements are also available and some antenatal supplements may contain vitamin D. Some non-funded Vitamin D preparation also contain vitamin A; these should not be taken during pregnancy as excessive vitamin A is teratogenic and associated with malformations of the fetal central nervous system

Contraindications and precautions for vitamin D supplementation should be considered prior to prescribing. Please refer to the NZF (http://www.nzf.org.nz) for prescribing information.

Whilst the therapeutic index of vitamin D is wide, caution should still be taken due to the risk of vitamin D toxicity; symptoms include dehydration, vomiting, decreased appetite, irritability, constipation, fatigue and muscle weakness.

Please refer to the Ministry of Health companion statement referenced below for the further details

References

1. Ministry of Health. Companion Statement on Vitamin D and Sun Exposure in Pregnancy and Infancy in New Zealand 2020 accessed via [https://www.health.govt.nz/system/files/documents/publications/companion-statement-vitamin-d-sun-exposure-pregnancy-infancy-nz-dec20.pdf]

COUNTIES MANUKAU HEALTH

Medication Monographs

Disclaimer

The medication information contained in the following monographs is not intended to replace the primary reference sources.

The information contained in the monographs should not be taken as an exhaustive and comprehensive list e.g. in terms of all available indications, interactions, side effects, drug interactions etc., but only as general guidance summary. Similarly, not all excipients of products (e.g. lactose, phenylalanine) are listed; the absence of this information in a monograph does not indicate that a particular product does not contain a relevant excipient. Please see the New Zealand Formulary (http://www.nzf.org.nz) or the manufacturer datasheets (http://www.medsafe.govt.nz) for more detailed prescribing information. Alternatively please call the Medicines Information Service at Middlemore Hospital for specific advice on extension 58257 or direct dial (09) 276 0257.

Please be aware that whilst correct at the time of writing, brand names and subsidised medicines are subject to frequent changes. The currently subsidised products on the community schedule can be confirmed on the Pharmac website (https://www.pharmac.govt.nz/wwwtrs/ScheduleOnline.php).

It is the intention of the writers that this document be used in conjunction with up-to date primary reference sources, CMH protocols/guidelines and clinical judgement tailored to the individual patient, and NOT as a sole resource.

Definitions of the recommendations for prescribing medicines in pregnancy and breastfeeding

Traditionally, we have used the Australian categorisation system and database for prescribing medicines in pregnancy. However, New Zealand no longer uses these categories. To support our organisation's practice, we have made a decision to refer to categorisation system used in Pregnancy and Breastfeeding Medicines Guide (PBMG), which is more practical and simple to follow. Permission has been granted from the PBMG editorial group from The Royal Women's Hospital, VIC, Australia. See https://thewomenspbmg.org.au/ for further details.
This information should not be replacing other relevant resources, it is designed to be referred to as a 'quick reference guide'.

Pregnancy

Recommendation	Definition
Safe to Use	Medicines where there is extensive human experience confirming that they do not increase the frequency of malformations or other direct or indirect harmful effects to the fetus.
Considered Safe to Use	The limited information available indicates that these medicines do not increase the frequency of malformations but some observations may be required.
Monitoring Required	The limited information available indicates that these medicines do not increase the frequency of malformations, however monitoring is required. This may include blood tests for therapeutic drug levels, liver function or thyroid function. Monitoring of maternal and fetal wellbeing as well as any potential adverse effects in the newborn may be required.
Consider Alternative	For medicines that have no human pregnancy experience or very few cases of pregnancy exposure, an alternative medicine should be considered. The use of these medicines may have been associated with developmental toxicity such as growth restriction, structural defects or death. The medicine should not be used in pregnancy, but when it is the only medicine available, the benefits versus risks of use need to be discussed with the pregnant woman.
Contraindicated	Medicines that have teratogenic, or irreversible undesirable effects, or are associated with developmental toxicity such as growth restriction, structural defects, functional or behavioural deficits, or death. These medicines are to be avoided throughout pregnancy. Consultation with a specialist is highly recommended. Women who have been exposed to these agents may require further counselling.

Breastfeeding

Recommendation	Definition
Safe to Use	Medicines which have been taken by a large number of women and has not been shown to cause harmful effects in the breastfed infant, even though small amounts of the medicine may be excreted into the breast milk.
Considered Safe to Use	Limited information is available to confirm these medicines do not cause harmful effects in the breastfed infant. However, observation of the breastfed infant may be required for any adverse effects such as nausea, vomiting, diarrhoea, drowsiness and poor feeding.
Monitoring Required	Medicines which require monitoring during breastfeeding as adverse effects are possible, or have been reported in the breastfed infant. Monitoring may include blood tests for liver function, thyroid function or drug levels. Detection of adverse effects in the breastfed infant may also be required. Consultation with a specialist for further advice may be required.
Consider Alternative	Medicines which have no human evidence during breastfeeding and the characteristics of the medicine suggest potential serious toxicity in breastfed infants.
Contraindicated	Medicines which should be avoided during breastfeeding, as potential serious adverse effects or toxicity have been reported in breastfed infants, or they may inhibit lactation.

Alginates

Trade name, Formulation, Strength and Funding	**Partially subsidised:** ▪ Acidex (sodium alginate 500mg, sodium bicarbonate 267mg, calcium carbonate 160mg per 10mL) liquid ▪ Gaviscon Double Strength (sodium alginate 500mg, sodium bicarbonate 267mg, calcium carbonate 160mg) tablets – peppermint flavour NB other preparations are also available for purchase from pharmacies.
Indication:	Heartburn of pregnancy
Contra-indications:	Hypersensitivity to preparation or excipients
Cautions	Sodium or calcium restriction; phenylketonuria (tablets)
Administration and Dosage:	**Adult** Oral ▪ **Acidex:** 10-20 mL after meals and at night, up to 4 times daily. ▪ **Gaviscon Double Strength tablets:** 1-2 tablets chewed thoroughly before swallowing, after meals and half an hour before bedtime, up to 4 times daily.
Adverse Effects: (NB this is not a complete list)	**Acidex:** hydroxybenzoate sensitivity including skin, rash, dermatitis, chest tightness, dyspnoea **Gaviscon Double Strength Tablets:** Diarrhoea
Interactions: (NB this is not a complete list)	Do not take other medicines within 2 hours of taking either Gaviscon or Acidex.
Pregnancy:	**Safe to use**
Breastfeeding:	**Considered safe to use**
Comments:	Be aware that some preparations may have a high sodium content and therefore may not be appropriate for women with high blood pressure.
Patient Information:	***Acidex liquid:*** Shake well. Do not lie down immediately after administration. ***Gaviscon Double Strength tablets:*** Do not lie down immediately after taking tablets. Contains aspartame.
Cross Reference:	**Antacids** – page 45 **Heartburn** – page 22

References

1. MIMs online accessed via [http://www.mimsgateway.co.nz] on 11/07/2017
2. New Zealand Formulary v94 01 April 2020 accessed via [http://www.nzf.org.nz]
3. New Zealand Online Pharmaceutical Schedule January2021 accessed via [http://www.pharmac.govt.nz]
4. Schaefer C, Peters P, Miller RK. Drugs During Pregnancy and Lactation: Treatment options and risk assessment. 3rd edition. London: Elsevier; 2014
5. The Royal Women's Hospital: Pregnancy and Breastfeeding Medicine Guide. Accessed via [https://thewomenspbmg.org.au/medicines] on 08/07/2020
6. US National Library of Medicine, LactMed. Accessed via [https://www.ncbi.nlm.nih.gov/books/NBK501922/]on 09/06/2021

Amoxicillin

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Alphamox 250mg and 500mg capsules ▪ Alphamox 125mg/5mL, 250mg/5mL oral liquid
Indication:	Broad spectrum antibiotic of the penicillin class; effective against a range of gram positive and gram negative organisms. Used to treat susceptible infections including respiratory and genitourinary tract, skin and soft tissue infections
Contra-indications:	Known hypersensitivity to penicillins and other beta-lactam antibiotics (e.g. cephalosporins), but see appendix 2 for further information.
Cautions	Suspicion of glandular fever; renal impairment
Administration and Dosage:	**Adult** Oral ▪ **Upper respiratory tract, genitourinary tract, skin or soft tissue infections:** 250mg every EIGHT hours, doubled in severe infections or infections caused by less susceptible organisms ▪ **Asymptomatic bacteriuria:** 500mg every EIGHT hours ▪ **Lower respiratory tract infections:** 500mg every EIGHT hours ▪ ***Chlamydia trachomatis* (for patients with allergy or contraindication to azithromycin):** 500mg every EIGHT hours for 7 days (NB may be less effective than azithromycin) NB: Duration of treatment varies depending on the indication. Please refer to Antibiotics: Choices for Common Infections at https://bpac.org.nz/antibiotics/bpacnz-antibiotics-guide.pdf or refer woman to family doctor as appropriate
Adverse Effects: (NB this is not a complete list)	**Common** ▪ Nausea; diarrhoea; taste disturbances; pruritus; urticaria **Uncommon** ▪ Vomiting; transient increased LFTs **Rare** ▪ Hepatitis; cholestatic jaundice; convulsions **Very rare** ▪ Severe allergic reactions including anaphylaxis; antibiotic-associated colitis; haemolytic anaemia
Interactions: (NB this is not a complete list)	**Allopurinol:** may increase the likelihood of allergic skin reactions **Probenecid:** may increase and prolong blood levels of amoxicillin. **Warfarin:** may increase INR

Pregnancy:	**Safe to use;** penicillins are considered low risk at any stage of pregnancy. It has been suggested that first trimester exposure to amoxicillin may be linked with oral clefts but the causality has not been confirmed and the absolute risk is very low.
Breastfeeding:	**Safe to use**; excreted in the milk only in small amounts. No harmful effects have been reported, but observe infant for possible adverse effects such as vomiting, diarrhoea, thrush or rash.
Patient Information:	Finish the course May be taken with or without food *Suspension:* Shake the suspension well before use; store in the fridge Discard 14 days after reconstitution
Cross Reference:	**Chlamydia** – page 14 **Urinary Tract Infection** - page 32 **Appendix 2** – CMH Poster: Penicillin Allergy – page 133 or http://cmdhbdocuments.healthcare.huarahi.health.govt.nz/docsdir/opendocument.aspx?id=A1386738
Related Guidelines:	**CMH Guideline**: Urinary Tract Infection in Pregnancy in **Appendix 3** (page 134) or via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A2815 for the latest version.

References

1. Bpac^{nz}. Antibiotic: choices for common infections 2017, Accessed via [https://bpac.org.nz/antibiotics/bpacnz-antibiotics-guide.pdf]
2. Briggs GG, Freeman RK. Drugs in Pregnancy and Lactation: A Reference Guide to Fetal and Neonatal Risk. Electronic version accessed via OVID on 12/07/2017
3. Data Sheet Apo-Amoxi (amoxicillin), Apotex New Zealand Ltd, prepared on 15/04/2016. Accessed via Medsafe [http://www.medsafe.govt.nz]
4. Hale TW. Medications and Mothers Milk. Online edition accessed via [http://www.medsmilk.com] on 12/07/2017
5. New Zealand Formulary v94 01 April 2020 accessed via [http://www.nzf.org.nz]
6. New Zealand Online Pharmaceutical Schedule January 2021 accessed via [http://www.pharmac.govt.nz]
7. Schaefer C, Peters P, Miller RK. Drugs During Pregnancy and Lactation: Treatment options and risk assessment. 3rd edition. London: Elsevier; 2014
8. The Royal Women's Hospital: Pregnancy and Breastfeeding Medicines Guide. Accessed via [https://thewomenspbmg.org.au/medicines] on 08/07/2020
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Amoxicillin/Clavulanic Acid

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Augmentin (500mg amoxicillin/125mg clavulanic acid) tablets ▪ Augmentin (125mg amoxicillin/31.25mg clavulanic acid) per 5mL oral liquid ▪ Curam (250mg amoxicillin/62.5mg clavulanic acid) per 5mL oral liquid
Indication:	Broad spectrum antibiotic of the penicillin group. Effective against a range of gram-positive and gram-negative organisms. Used to treat a variety of common bacterial infections including skin and soft tissue, respiratory tract and genitourinary tract infection.
Contra-indications:	Known hypersensitivity to penicillins and other beta-lactam antibiotics (e.g. cephalosporins); previous history of amoxicillin/clavulanic acid associated jaundice or hepatic dysfunction Avoid if there is a risk of preterm delivery (see "Pregnancy" below)
Cautions	Suspicion of glandular fever; hepatic impairment; renal impairment
Administration and Dosage:	**Adult** Oral ▪ 500mg amoxicillin/125mg clavulanic acid every EIGHT hours NB: Duration of treatment varies depending on the indication. Please refer to Antibiotics: Choices for Common Infections at https://bpac.org.nz/antibiotics/bpacnz-antibiotics-guide.pdf or refer woman to family doctor as appropriate
Adverse Effects: (NB this is not a complete list)	**Common** ▪ Diarrhoea; nausea; vomiting; oral thrush **Uncommon** ▪ Dizziness; headache; indigestion; raised LFTs; rash; pruritus; urticaria **Rare** ▪ Erythema multiforme **Very rare** ▪ Severe allergic reactions including anaphylaxis; antibiotic-associated colitis; convulsions; hepatitis and cholestatic jaundice (can occur during or after treatment; ensure duration is appropriate to indication – should not usually exceed 14 days); Stevens-Johnson syndrome; toxic epidermal necrolysis; haemolytic anaemia
Interactions: (NB this is not a complete list)	**Allopurinol:** may increase the likelihood of allergic skin reactions **Probenecid:** may increase and prolong blood levels of amoxicillin. **Warfarin:** may increase INR

Pregnancy:	**Safe to use;** Preferably avoid in women with preterm rupture of membranes due to an increased risk of necrotising enterocolitis in neonates
Breastfeeding:	**Safe to use**; excreted in the milk only in small amounts. Observe infant for possible adverse effects such as vomiting, diarrhoea, thrush or rash.
Comments:	Duration of treatment should not exceed 14 days without review.
Patient Information:	Finish the course Take at the start of a meal (to reduce gastric upset and to optimise absorption) *Suspension:* Shake the suspension well before use; store in the fridge. Discard 7 days after reconstitution.
Cross Reference:	**Endometritis** – page 20 **Urinary Tract Infection** – page 32 **Appendix 2** – CMH Poster: Penicillin Allergy – page 133 or http://cmdhbdocuments.healthcare.huarahi.health.govt.nz/docsdir/opendocument.aspx?id=A1386738
Related Guidelines:	**CMH Guideline**: Urinary Tract Infection in Pregnancy in **Appendix 3** (page 134) or via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A2815 for the latest version.

References

1. Bpac^{nz}. Antibiotic: choices for common infections 2017, Accessed via [https://bpac.org.nz/antibiotics/bpacnz-antibiotics-guide.pdf]
2. Briggs GG, Freeman RK. Drugs in Pregnancy and Lactation: A Reference Guide to Fetal and Neonatal Risk. Electronic version accessed via OVID on 14/07/2017
3. Data Sheet Augmentin (amoxicillin/clavulanic acid), GlaxoSmithKline NZ Ltd, prepared on 29/04/2013. Accessed via Medsafe [http://www.medsafe.govt.nz]
4. Hale TW. Medications and Mothers Milk. Online edition accessed via [http://www.medsmilk.com] on 14/07/2017
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6. New Zealand Online Pharmaceutical Schedule January 2021 accessed via [http://www.pharmac.govt.nz]
7. Schaefer C, Peters P, Miller RK. Drugs During Pregnancy and Lactation: Treatment options and risk assessment. 3rd edition. London: Elsevier; 2014
8. The Royal Women's Hospital: Pregnancy and Breastfeeding Medicines Guide. Accessed via [https://thewomenspbmg.org.au/medicines] on 08/07/2020
9. US National Library of Medicine, LactMed. Accessed via [https://www.ncbi.nlm.nih.gov/books/NBK501922/]on 09/06/2021

Antacids

Trade Name, Formulation, Strength and Funding	No funded preparations available – please refer to Alginates for alternative partially subsidised options for heartburn. Numerous antacid preparations are available for purchase at pharmacies.
Indication:	Heartburn of pregnancy
Contra-indications:	Hypersensitivity to any of the ingredients
Cautions	**Please refer to box / package insert of individually purchased antacids**
Administration and Dosage:	▪ **Please refer to box / package insert of individually purchased antacids**
Adverse Effects:	▪ **Please refer to box / package insert of individually purchased antacids**
Interactions: (NB this is not a complete list)	Do not take antacids within 2 hours of taking any other medication as antacids may interfere with their absorption.
Pregnancy:	**Safe to use;** Antacids are generally considered safe in pregnancy.
Breastfeeding:	**Considered safe to use**; Absorption is generally poor therefore no harmful effects would be anticipated.
Comments:	Monitor electrolytes in patients with renal dysfunction or hypophosphatemia and in those on a sodium restricted diet
Patient Information:	See heartburn monograph for non-pharmacological advice
Cross Reference:	**Alginates** – page 40 **Heartburn** – page 22

References

1. Hale TW. Medications and Mothers Milk. Online edition accessed via [http://www.medsmilk.com] on 14/07/2017
2. New Zealand Formulary v94 01 April 2020 accessed via [http://www.nzf.org.nz]
3. New Zealand Online Pharmaceutical Schedule April 2020 accessed via [http://www.pharmac.govt.nz]
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5. The Royal Women's Hospital: Pregnancy and Breastfeeding Medicines Guide. Accessed via [https://thewomenspbmg.org.au/medicines] on 08/07/2020
6. US National Library of Medicine, LactMed. Accessed via [https://www.ncbi.nlm.nih.gov/books/NBK501922/]on 09/06/2021

Aspirin

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Ethics Aspirin 100mg EC tablet
Indication:	By reducing vasoconstriction and platelet aggregation, low dose aspirin could be beneficial in preventing pregnancy induced hypertension, preeclampsia, intrauterine growth restriction, preterm birth and early pregnancy loss. [Unapproved indication] Prevent heart attack or stroke Analgesic, anti-inflammatory and anti-pyretic in high doses
Contra-indications:	Children under 16 years (Reye's syndrome); haemophilia; severe cardiac failure Hypersensitivity to aspirin and other NSAIDs, including those in whom attacks of asthma, angioedema, urticarial or rhinitis have been precipitated by aspirin or any other NSAID.
Cautions	Previous or active peptic ulceration – assess other risk factors for bleeding and ulceration, gastroprotection with a proton pump inhibitor is recommended. Asthma; G6PD deficiency (increased risk of haemolytic anaemia); concomitant use of drugs that increases risk of bleeding; anaemia; thyrotoxicosis
Administration and Dosage:	**Adult** Oral ▪ 100mg ONCE daily at night (from between weeks 12-16 of pregnancy until week 36)
Adverse Effects: (NB this is not a complete list)	Gastro-intestinal discomfort; nausea; bleeding and activation of peptic ulcer; bronchospasm; skin reactions; increased bleeding time; haemolytic anaemia; thrombocytopaenia
Interactions: (NB this is not a complete list)	**Warfarin:** increases the risk of bleeding
Pregnancy:	**Doses ≤ 150mg: Considered safe to use**
Breastfeeding:	**Doses ≤ 150mg: Considered safe to use**.
Patient information:	Take until week 36 of pregnancy unless advised to stop earlier.

	Swallow whole, do not crush or chew. Take with food at night.
Cross Reference:	**Calcium** – page 57
Related Guidelines:	**CMH Guideline** via CMDHB Documentation Directory http://cmdhbdocuments.healthcare.huarahi.health.govt.nz/docsdir/ for the latest version. • Hypertension in Pregnancy and Postpartum Managment • Counties Manukau Health Diabetes in Pregnancy Service Midwifery Team AnteNatal Care Plan • Maternal Obesity Antenatal, Labour and Birth and postnatal management (including management of pregnant women following previous bariatric surgery) • Thromboprophylaxis – Antenatal Management • Twin Pregnancy (Monochorionic) – Antenatal Management **CMH Pamphlet** • Women's Health: Low dose aspirin in pregnancy

References

1. Briggs GG, Freeman RK. Drugs in Pregnancy and Lactation: A Reference Guide to Fetal and Neonatal Risk. Electronic version accessed via OVID on 04/01/2021
2. Hale TW. Medications and Mothers Milk. Online edition accessed via [http://www.medsmilk.com] on 04/01/2021
3. Ministry of Health. Diagnosis and Treatment of Hypertension and Pre-eclampsia in Pregnancy in New Zealand: A clinical practice guideline, 2018. Accessed via [https://www.health.govt.nz/system/files/documents/publications/diagnosis-and-treatment-of-hypertension-and-pre-eclampsia-in-pregnancy-in-new-zealand-v3.pdf]
4. New Zealand Formulary v103 01 January 2021 accessed via [http://www.nzf.org.nz]
5. Schaefer C, Peters P, Miller RK. Drugs During Pregnancy and Lactation: Treatment options and risk assessment. 3rd edition. London: Elsevier; 2014
6. The Royal Women's Hospital: Pregnancy and Breastfeeding Medicines Guide. Accessed via [https://thewomenspbmg.org.au/medicines] on 08/07/2020
7. US National Library of Medicine, LactMed. Accessed via [https://www.ncbi.nlm.nih.gov/books/NBK501922/]on 09/06/2021

Azithromycin

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised (for maximum of 5 days treatment):** ▪ Apo-Azithromycin 250mg and 500mg tablets ▪ Zithromax 200mg/5mL oral liquid
Indication:	Treatment of sexually transmitted uncomplicated genital infections due to *Chlamydia trachomatis* and non-multi-resistant *Neisseria gonorrhoea*
Contra-indications:	Hypersensitivity to azithromycin, erythromycin or any other macrolide antibiotic.
Cautions	Patients with a predisposition to QT-interval prolongation (including electrolyte disturbances and concomitant use of drugs that prolong the QT interval); acute porphyria; severe liver disease; severe renal impairment
Administration and Dosage:	**Adult** Oral ▪ ***Chlamydia trachomatis* or *Neisseria gonorrhoea* infection:** 1g (2 x 500mg tablets) as a single dose
Adverse Effects: (NB this is not a complete list)	*From single 1g dose regimen:* Diarrhoea, nausea, abdominal pain, vomiting, vaginitis, dyspepsia
Interactions: (NB this is not a complete list)	**Antacids:** leave a 2 hour gap either side of administration **Ciclosporin:** levels may be increased by azithromycin **Digoxin:** levels may be increased by azithromycin **Ergot derivatives e.g. bromocriptine, cabergoline and ergometrine maleate including Syntometrine:** concurrent use with macrolide antibiotics, such as azithromycin, may cause ergotism. This is theoretical but seems unlikely. However, manufacturer advise to avoid concurrent use.
Pregnancy:	**Considered safe to use**
Breastfeeding:	**Considered safe to use**; excreted in low levels into the breast milk but unlikely to pose harm in the breastfed infant. Observe infant for possible adverse effects such as vomiting, diarrhoea, thrush or rash.
Comments:	Also used for other infections - see New Zealand Formulary (http://www.nzf.org.nz) for dosing information.

Patient Information:	May be taken with food *Suspension:* Shake the suspension well before use; store at room temperature. Discard 10 days after reconstitution.
Cross Reference:	**Chlamydia** – page 14

References

1. Briggs GG, Freeman RK. Drugs in Pregnancy and Lactation: A Reference Guide to Fetal and Neonatal Risk. Electronic version accessed via OVID on 14/07/2017
2. Data Sheet Apo-Azithromycin (azithromycin), Apotex New Zealand Ltd, prepared on 23/04/2015. Accessed via Medsafe [http://www.medsafe.govt.nz]
3. Hale TW. Medications and Mothers Milk. Online edition accessed via [http://www.medsmilk.com] on 14/07/2017
4. New Zealand Formulary v94 01 April 2020 accessed via [http://www.nzf.org.nz]
5. New Zealand Online Pharmaceutical Schedule January 2021 accessed via [http://www.pharmac.govt.nz]
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8. US National Library of Medicine, LactMed. Accessed via [https://www.ncbi.nlm.nih.gov/books/NBK501922/]on 09/06/2021

Barrier Preparations

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ healthE Dimethicone 5% cream (500mL pump bottle) ▪ healthE Dimethicone 10% cream (500mL pump bottle) ▪ Boucher zinc and castor oil ointment (500g pack only) Numerous other preparations are available for purchase.
Indication:	For the relief of the symptoms of nappy rash and as a protective barrier
Contra-indications:	Hypersensitivity to any of the ingredients
Administration and Dosage:	Apply topically to the nappy area at each nappy change.
Adverse Effects: (NB this is not a complete list)	None expected
Interactions: (NB this is not a complete list)	None known
Comments:	A topical antifungal such as miconazole or nystatin cream should be used if there is an associated candida infection. A mild corticosteroid cream such as hydrocortisone 0.5% (not funded) or 1% can be used if inflammation is causing discomfort in those over 4 weeks of age (avoid in neonates) but treatment should be limited to 5 - 7 days . It should be applied sparingly (before applying the barrier preparation) and discontinued as soon as the inflammation subsides.
Patient Information:	For external use only. Ensure nappies are changed frequently. Clean the nappy area and dry thoroughly. Exposing the rash to the air may aid healing. Use a clean hand to remove required amount of cream or ointment from the pot or jar in order to prevent contaminating the cream with faecal matter.
Cross Reference:	**Miconazole** – page 109 **Nystatin** – page 118 **Nappy Rash** – page 26

References

1. New Zealand Formulary for Children v94 01 April 2020 accessed via [http://www.nzfchildren.org.nz]
2. New Zealand Online Pharmaceutical Schedule Januray 2021 accessed via [http://www.pharmac.govt.nz]

Bath Oils and Soap Substitutes

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Boucher Aqueous cream (liquid paraffin, white soft paraffin, emulsifying wax, water purified) ▪ AFT Emulsifying ointment (liquid paraffin, white soft paraffin, emulsifying wax) **Not subsidised:** ▪ Alpha Keri bath oil (lanolin, liquid paraffin) ▪ Aveeno Shower and Bath Oil (colloidal oatmeal, mineral oil) ▪ Aveeno soothing bath treatment sachets (colloidal oatmeal) ▪ QV bath oil (light liquid paraffin) ▪ QV wash (glycerol)
Indication:	For use in the bath or the shower to alleviate symptoms of dry skin or eczema
Contra-indications:	Hypersensitivity to agent or excipients
Cautions	Emollients containing sodium lauryl sulphate (i.e. emulsifying ointment and some aqueous cream preparations may increase the risk of skin reactions, particularly in eczema, if they are left on the skin and therefore they should be washed off.
Administration and Dosage:	**Soap substitutes**: e.g. aqueous cream and emulsifying ointment - apply to wet skin and wash off. Gently pat dry. **Bath additives:** add to bath water and soak for 10-20 minutes. **Showering:** massage onto wet skin, rinse then pat dry.
Adverse Effects: (NB this is not a complete list)	Adverse effects unlikely. Possible chance of skin reactions at the site of application such as stinging, burning, itching, redness, rash.
Interactions: (NB this is not a complete list)	None known
Pregnancy:	**Safe to use**
Breastfeeding:	**Safe to use**
Patient Information:	For external use only. These preparations make skin and surfaces slippery – particular care is needed when bathing or when handling a baby.

	Paraffin based-products in contact with dressings and clothing are easily ignited by a naked flame. Keep away from fire or flames and do not smoke when using these preparations.
Cross Reference:	**Dry Itchy Skin** – page 18 **Dry Skin in the Neonate** – page 19 **Emollients** – page81

References

1. Briggs GG, Freeman RK. Drugs in Pregnancy and Lactation: A Reference Guide to Fetal and Neonatal Risk. Electronic version accessed via OVID on 14/07/2017
2. Hale TW. Medications and Mothers Milk. Online edition accessed via [http://www.medsmilk.com] on 14/07/2017
3. MIMs Gateway accessed via [http://mimsgateway.co.nz] on 14/07/2017
4. New Zealand Formulary v94 01 April 2020 accessed via [http://www.nzf.org.nz]
5. New Zealand Online Pharmaceutical Schedule January 2021 accessed via [http://www.pharmac.govt.nz]
6. Schaefer C, Peters P, Miller RK. Drugs During Pregnancy and Lactation: Treatment options and risk assessment. 3rd edition. London: Elsevier; 2014
7. The Royal Women's Hospital: Pregnancy and Breastfeeding Medicines Guide. Accessed via [https://thewomenspbmg.org.au/medicines] on 08/07/2020
8. US National Library of Medicine, LactMed. Accessed via [https://www.ncbi.nlm.nih.gov/books/NBK501922/]on 09/06/2021

Bulk Forming Laxatives

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Konsyl-D powder for oral solution (psyllium) **Not subsidised:** ▪ Metamucil powder for oral solution, oral capsules (psyllium) ▪ Mucilax powder for oral solution (psyllium) ▪ Bonvit powder for oral solution, oral capsules (psyllium) Various other psyllium products (including capsule formulations) are available for purchase
Indication:	Constipation
Contra-indications:	Swallowing difficulties; intestinal obstruction; colonic atony; faecal impaction; previous hypersensitivity to active ingredient or excipients
Cautions	Acute abdominal pain; nausea and vomiting; ulcerative colitis; maintain adequate fluid intake to avoid intestinal obstruction. Some preparations, including the funded product Konsyl-D, contain large amounts of sugar, therefore patients with diabetes should purchase sugar-free formulations.
Administration and Dosage:	**Adult** Oral powder for reconstitution ▪ **Konsyl-D powder:** 6.5g (one rounded 5mL measuring spoon) in 250mL liquid 1-3 times daily. Follow with additional 250mL fluid ▪ **Bonvit:** 10g (2 x level 5mL measuring spoons) in 250mL liquid 1-2 times daily. Follow with additional 250mL fluid ▪ **Metamucil Granular Natural powder:** 7g (2 x 5mL level measuring spoons 1-3 times daily in 250mL liquid**Mucilax powder, Mucilax Regular powder:** One rounded 5mL measuring spoon in water 1-3 times daily Capsule • **Bonvit:** 2-6 capsules with at least 250mL cool water 1-2 times daily • **Metamucil:** 2-6 capsules with at least 250mL cool water 1-3 times daily
Adverse Effects: (NB this is not a complete list)	Flatulence; abdominal distension; GI obstruction or impaction; hypersensitivity
Interactions: (NB this is not a complete list)	**Lithium:** absorption of lithium may be reduced; significance uncertain **Oral medicines:** psyllium may reduce absorption of oral medicines therefore leave a 2 hour interval either side of administration of psyllium and other oral medicines

Pregnancy:	**Safe to use;** Agents of choice for constipation in pregnancy.
Breastfeeding:	**Safe to use**; minimal systemic absorption.
Patient Information:	See constipation monograph (page 15) for non-pharmacological interventions. The full effect may take some days to develop *Psyllium powder:* ▪ Stir powder in liquid for 3-5 seconds and drink promptly. ▪ Swallow carefully with water or fruit juice; do not take immediately before bed time. Ensure adequate fluid intake. ▪ Avoid taking other oral medication within 2 hours *Oral capsule:* • Swallow only one capsule at a time with adequate liquid
Cross Reference:	**Constipation** – page 15

References

1. Briggs GG, Freeman RK. Drugs in Pregnancy and Lactation: A Reference Guide to Fetal and Neonatal Risk. Electronic version accessed via OVID on 14/07/2017
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Cabergoline

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised for maximum of 2 x 500 microgram tablets per prescription:** ▪ Dostinex 500 microgram tablets
Indication:	Inhibition of physiological lactation on day 1 postpartum for clearly defined medical reasons.
Contra-indications:	Hypersensitivity to ergot alkaloids; pre-eclampsia; postpartum hypertension; history of puerperal psychosis; history of pulmonary, pericardial or retroperitoneal fibrotic disorders; cardiac valvulopathy
Cautions	History of peptic ulcer (particular acromegalic patients) – withdraw treatment if GI bleeding occurs; Raynaud's syndrome and cardiovascular disease; history of serious mental disorders; acute porphyria; severe hepatic or renal insufficiency
Administration and Dosage:	**Adult** Oral ▪ 1mg (2 x 500 microgram tablets) as a single dose on day 1 postpartum ▪ **To inhibit established lactation:** 250 microgram every TWELVE hours for 2 days
Adverse Effects: (NB this is not a complete list)	Adverse effects with single doses are usually mild to moderate in severity and of a transient nature. **Common** ▪ dizziness/vertigo; headache; nausea; abdominal pain; breast pain. **Rare:** ▪ palpitations; epigastric pain; somnolence; epistaxis and transient hemianopsia; vomiting; syncope; asthenia; hot flushes. Decreases in blood pressure (≥20mmHg systolic and ≥10mmHg diastolic) may occur usually once during the first 3 - 4 days postpartum
Interactions: (NB this is not a complete list)	**ACE inhibitors e.g. quinapril, cilazapril:** additive hypotension may occur **Domperidone:** can cause galactorrhoea therefore inappropriate for patients trying to reduce prolactin levels **Dopamine antagonists e.g. metoclopramide, prochlorperazine, droperidol, some antipsychotics:** oppose the action of cabergoline thereby reducing its prolactin-lowering effect **Macrolides e.g. erythromycin:** may raise levels of cabergoline **Ergot derivatives e.g. bromocriptine, ergometrine maleate including Syntometrine:** cabergoline is an ergot derivative and concurrent use with other

	ergot derivatives should preferably be avoided as adverse effect may be additive. However, no information is available for potential interaction. Therefore, concurrent use with long-term treatment with cabergoline is not recommended. If concurrent use is unavoidable, monitor for adverse effect.
Pregnancy:	**Consider alternative**; unlikely to be relevant to pregnancy when used for these indications.
Breastfeeding:	**Contraindicated;** Not usually used as it suppresses lactation
Comments:	If being used to suppress established lactation, do not exceed a single dose of 250 microgram, in order to avoid potential postural hypotension.
Patient Information:	May cause excessive dizziness, daytime drowsiness or sudden onset of sleep. Do not drive or operate machines until these effects have subsided. Take with or just after food.

References

1. Briggs GG, Freeman RK. Drugs in Pregnancy and Lactation: A Reference Guide to Fetal and Neonatal Risk. Electronic version accessed via OVID on 14/07/2017
2. Data Sheet Dostinex (cabergoline), Pfizer New Zealand Ltd, prepared on 15/06/2015. Accessed via Medsafe [http://www.medsafe.govt.nz]
3. Hale TW. Medications and Mothers Milk. Online edition accessed via [http://www.medsmilk.com] on 14/07/2017
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5. New Zealand Online Pharmaceutical Schedule January 2021 accessed via [http://www.pharmac.govt.nz]
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8. US National Library of Medicine, LactMed. Accessed via [https://www.ncbi.nlm.nih.gov/books/NBK501922/]on 09/06/2021

Calcium

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Claci-Tab 500mg (elemental) tablet ▪ Arrow-Calcium 500mg (elemental) tablet (Calcium carbonate 1.25g tablet contain 500mg elemental calcium per tablet)
Indication:	To prevent or reduce the risk of hypertensive disorders in pregnancy (gestational hypertension and preeclampsia) and preterm birth. Calcium deficiency; Hyperphosphataemia in chronic renal failure
Contra-indications:	Conditions associated with hypercalcaemia and hypercalciuria
Cautions	Sarcoidosis; history of nephrolithiasis; hyperparathyroidism Renal impairment: use with caution; risk of hypercalcaemia and renal calculi
Administration and Dosage:	**Adult** Oral Recommended dose during pregnancy: ▪ Calcium (elemental) 1g daily (from between weeks 12-16 of pregnancy until week 36)
Adverse Effects: (NB this is not a complete list)	Constipation; flatulence; belching; abdominal distention; nausea; diarrhoea; gastro-intestinal discomfort; hypercalcaemia; hypophosphataemia; alkalosis; milk-alkali syndrome; renal caculi
Interactions: (NB this is not a complete list)	**Hydroxychloroquine:** may reduce hydroxychloroquine absorption **Iron supplement:** may reduce the absorption of iron; separate administration as much as possible. **Tetracycline antibiotic (Doxycycline):** markedly reduce tetracycline bioavailability and therefore efficacy
Pregnancy:	**Safe to use**
Breastfeeding:	**Considered safe to use**

Patient Information:	Best to take calcium tablets 2 hours away from other medications and supplements Only take recommended doses. Avoid overconsumption of calcium containing products during pregnancy and breastfeeding, due to potential adverse effects.
Cross Reference:	**Aspirin** - page 46
Related Guidelines:	**CMH Guideline** via CMDHB Documentation Directory http://cmdhbdocuments.healthcare.huarahi.health.govt.nz/docsdir/ for the latest version. • Hypertension in Pregnancy and Postpartum Management • Counties Manukau Health Diabetes in Pregnancy Service Midwifery Team AnteNatal Care Plan • Maternal Obesity Antenatal, Labour and Birth and postnatal management (including management of pregnant women following previous bariatric surgery) • Twin Pregnancy (Monochorionic) – Antenatal Management

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6. Schaefer C, Peters P, Miller RK. Drugs During Pregnancy and Lactation: Treatment options and risk assessment. 3rd edition. London: Elsevier; 2014
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Cefaclor

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Ranbaxy-Cefaclor 250mg capsules ▪ Ranbaxy-Cefaclor 125mg/5mL oral liquid
Indication:	Broad spectrum antibiotic of the cephalosporin class; effective against a range of gram positive and gram negative organisms. Used to treat susceptible infections including respiratory and genitourinary tract, skin and soft tissue infections
Contra-indications:	Known hypersensitivity to cephalosporins or penicillins but see Appendix 2 for further details.
Cautions	Hepatic impairment
Administration and Dosage:	**Adult** Oral ▪ **Upper respiratory tract, genitourinary tract, skin or soft tissue infections:** 250mg every EIGHT hours, increased to 500mg every EIGHT hours for severe infections. ▪ **Prophylaxis of UTI:** 250mg nocte
Adverse Effects: (NB this is not a complete list)	**Common** ▪ Diarrhoea **Uncommon** ▪ Pruritus; urticaria; vaginitis **Rare** ▪ Nausea; vomiting; antibiotic-associated colitis; transient hepatitis; cholestatic jaundice; serum-sickness like reactions; thrombocytopenia; Stevens-Johnson syndrome; toxic epidermal necrolysis; anaphylaxis; haemolytic anaemia **Others** ▪ Abdominal discomfort; headache; eosinophilia, hyperactivity; nervousness; sleep disturbances; confusion; dizziness; hallucinations
Interactions: (NB this is not a complete list)	**Probenecid:** may increase and prolong blood levels of cefaclor **Warfarin:** may increase INR
Pregnancy:	**Safe to use;** not known to be harmful
Breastfeeding:	**Safe to use**; excreted in the milk only in small amounts. No harmful effects have been reported, but observe infant for possible adverse effects such as vomiting, diarrhoea, thrush or rash.

Patient Information:	Finish the course *Suspension:* Shake the suspension well before use; store in the fridge Discard 14 days after reconstitution
Cross Reference:	**Urinary Tract Infection** - page 32 **Appendix 2** – CMH Poster: Penicillin Allergy – page 133 or http://cmdhbdocuments.healthcare.huarahi.health.govt.nz/docsdir/opendocument.aspx?id=A1386738
Related Guidelines:	**CMH Guideline**: Urinary Tract Infection in Pregnancy in **Appendix 3** (page 134) or via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A2815 for the latest version.

References

1. Briggs GG, Freeman RK. Drugs in Pregnancy and Lactation: A Reference Guide to Fetal and Neonatal Risk. Electronic version accessed via OVID on 14/07/2017
2. Data Sheet Ranbaxy-Cefaclor (cefaclor) Douglas Pharmaceuticals Ltd, prepared on 06/09/2012. Accessed via Medsafe [http://www.medsafe.govt.nz]
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Cefalexin (Cephalexin)

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Cephalexin ABM 250mg and 500mg capsules ▪ Cefalexin Sandoz 125mg/5mL and 250mg/5mL oral liquid
Indication:	Broad spectrum antibiotic of the cephalosporin class; effective against a range of gram positive and gram negative organisms. Used to treat susceptible infections including respiratory and genitourinary tract, skin and soft tissue infections.
Contra-indications:	Known hypersensitivity to cephalosporins or penicillins but see Appendix 2 for further details.
Cautions	Renal impairment and hepatic impairment
Administration and Dosage:	**Adult** Oral ▪ **Acute uncomplicated UTI (if infecting organism susceptible and resistant to first-line choices):** 500mg every TWELVE hours for 7 days ▪ **Mild pyelonephritis (if infecting organism susceptible and resistant to first- line choices):** 500mg every TWELVE hours for 10 days ▪ **Prophylaxis of recurrent UTI:** 125mg nocte
Adverse Effects: (NB this is not a complete list)	**Common** ▪ Diarrhoea, nausea, vomiting **Uncommon** ▪ Headache, abdominal discomfort **Rare** ▪ Antibiotic-associated colitis; transient hepatitis; cholestatic jaundice; serum-sickness like reactions; thrombocytopenia; Stevens-Johnson syndrome; toxic epidermal necrolysis; anaphylaxis; disturbances in liver enzymes; transient hepatitis; haemolytic anaemia; halluciation
Interactions: (NB this is not a complete list)	**Probenecid:** may increase and prolong blood levels of cefalexin **Warfarin:** may increase INR, monitor INR closely. **Zinc:** appears to decrease the exposure to cefalexin when given at the same time, but not when it is given 3 hours after cefalexin.
Pregnancy:	**Safe to use;** not known to be harmful

Breastfeeding:	**Safe to use**; excreted in the milk only in small amounts. Safe to use at the recommended doses during breastfeeding and observe infant for possible adverse effects such as vomiting, diarrhoea, thrush or skin rash.
Patient Information:	Finish the course *Suspension:* Shake the suspension well before use; store in the fridge Discard 14 days after reconstitution
Cross Reference:	**Urinary Tract Infection** - page 32 **Appendix 2** – CMH Poster: Penicillin Allergy – page 133 or http://cmdhbdocuments.healthcare.huarahi.health.govt.nz/docsdir/opendocument.aspx?id=A1386738
Related Guidelines:	**CMH Guideline**: Urinary Tract Infection in Pregnancy in **Appendix 3** (page 134) or via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A2815 for the latest version.

References

1. Briggs GG, Freeman RK. Drugs in Pregnancy and Lactation: A Reference Guide to Fetal and Neonatal Risk. Electronic version accessed via OVID on 20/04/2021
2. Data Sheet Cephalexin ABM (cephalexin) BNM Group, prepared on 04/03/2019. Accessed via Medsafe [http://www.medsafe.govt.nz]
3. Hale TW. Medications and Mothers Milk. Online edition accessed via [http://www.medsmilk.com] on 20/04/2021
4. New Zealand Formulary v106 01 April 2021 accessed via [https://www.nzf.org.nz]
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6. The Royal Women's Hospital: Pregnancy and Breastfeeding Medicines Guide. Accessed via [https://thewomenspbmg.org.au/medicines] on 20/04/2021

Celecoxib

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Celecoxib Pfizer 100mg and 200mg capsules
Indication:	Post-traumatic or post-operative pain, inflammation, swelling
Contra-indications:	1st and 3rd trimester of pregnancy; hypersensitivity to aspirin or any other NSAID including patients in whom attacks of asthma, urticaria or rhinitis have been precipitated by aspirin or other NSAIDs; Myocardial infarction in the last 3 months; severe heart failure; active GI ulcer or bleeding; history of GI ulceration, haemorrhage or perforation; severe renal or hepatic impairment
Cautions	Elderly, allergic disorders; coagulation defects; connective-tissue disorder; patients at risk of peptic ulceration or GI bleeding; inflammatory bowel disease; cardiac disease; uncontrolled hypertension; peripheral artery disease; risk factors for cardiovascular events; cerebrovascular disease; renal or hepatic impairment (contra-indicated if severe)
Administration and Dosage:	**Adult** Oral ▪ 200-400mg daily in 1-2 divided doses
Adverse Effects: (NB this is not a complete list)	**Common** ▪ Epigastric discomfort or pain; nausea; diarrhoea; GI bleeding; gastro-intestinal ulceration; increased blood pressure; dyspnoea; dizziness; headache; sodium and fluid retention **Less common** ▪ Stomatitis; palpitation; cerebral infarction; bronchospasm/asthma; confusion; fatigue; muscle cramps; rash **Rare** ▪ Hepatic damage; pancreatitis; heart failure; interstitial nephritis; blood dyscrasia; hypersensitivity reactions (anaphylaxis, angioedema, urticaria); taste disorders; alopecia; photosensitivity; Stevens-Johnson syndrome; toxic epidermal necrolysis **Very Rare** ▪ Seizures
Interactions: (NB this is not a complete list)	**Anti-hypertensives:** possible reduced antihypertensive effect **Ciclosporin and lithium:** may cause increased concentrations of these agents with the potential for adverse effects or toxicity. Monitoring required. **Ciprofloxacin or other quinolones:** Possible risk of convulsions; avoid or use combination with caution in patients with epilepsy. **Diuretics:** may reduce diuretic effect and also increase risk of acute renal failure. Increased potassium levels may occur when used with potassium-sparing diuretics.

	Tacrolimus: additive nephrotoxic effects **Warfarin:** possible increased risk of haemorrhage; monitor INR
Pregnancy:	**Consider alternative**; Avoid in pregnancy, especially in 3rd trimester (due to risk of prematurely closing the ductus arteriosus, persistent hypertension of the newborn, nephrotoxicity and oligohydramnios) and in the 1st trimester (due to a possible association with a low risk of congenital malformations or spontaneous abortion).
Breastfeeding:	**Considered safe to use:** Limited information available for use during breastfeeding. Small amounts excreted in the milk, but unlikely to pose harmful effects in the breastfed infant. Monitor infant for potential adverse effects such as vomiting, diarrhoea, abdominal discomfort and rash.
Comments:	NSAIDs may be associated with an increased risk of serious cardiovascular events; patients with cardiovascular disease or those receiving higher doses for prolonged periods may be more at risk. NSAIDs may cause bronchospasm or induce asthma attacks in some patients with asthma.
Patient Information:	Take oral doses with a large glass of water and with food if gastro-intestinal upset occurs.
Cross Reference:	**Analgesia on Discharge after Caesarean Section** – page 11
Related Guidelines:	**CMH Guideline**: Analgesia and post-operative prescribing for women who have a caesarean section via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A341223

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7. The Royal Women's Hospital: Pregnancy and Breastfeeding Medicines Guide. Accessed via [https://thewomenspbmg.org.au/medicines] on 20/04/2021

Clindamycin

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Dalacin C 150mg capsule
Indication:	Broad-spectrum antibacterial agent susceptible to anaerobic bacteria or strains of gram-positive bacteria for the treatment of infections e.g. skin and soft tissue infection, bone and joint infection, bacterial vaginosis second line to metronidazole if allergy/intorerance, pelvic inflammatory disease with life-threatening reaction to penicillins (in combination with other antibiotics)
Contra-indications:	Hypersensitivity to clindamycin or any other excipients; diarrhoeal states
Cautions	Discontinue immediately if diarrhoea or colitis develops Monitor liver and renal function if treatment exceeds 10 days
Administration and Dosage:	**Adult** Oral ▪ **Bacterial vaginosis:** 300mg TWICE daily 7 days (for Metronidazole allergy or contraindication)
Adverse Effects: (NB this is not a complete list)	Diarrhoea (discontinue treatment); abdominal discomfort; oesophagitis; oesophageal ulcers; taste disturbances; nausea; vomiting; antibiotic-associated colitis; jaundice; polyarthritis; rash; pruritus; urticarial; thrombocytopenia; leucopenia; eosinophilia; anaphylactoid reactions
Interactions: (NB this is not a complete list)	**Carbamazepine, phenobartital , phenytoin, primidone, rifampicin:** increases the clearance of clindamycin, may reduce the effects of clindamycin **Warfarin:** possible increased anticoagulant effect; monitor INR
Pregnancy:	**Safe to use**
Breastfeeding:	**Considered safe to use;** Small amounts of clindamycin is excreted into the breast milk. Observe the breastfed infant for possible adverse effects such as vomiting, diarrhoea, thrush or rash.
Patient Information:	Finish the course. Talk to doctor or pharmacist immediately if notices severe diarrhoea.
Cross Reference:	**Bacterial Vaginosis** – page 13 **Metronidazole** – page 107

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1. Briggs GG, Freeman RK. Drugs in Pregnancy and Lactation: A Reference Guide to Fetal and Neonatal Risk. Electronic version accessed via OVID on 04/01/2021
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4. Hale TW. Medications and Mothers Milk. Online edition. Accessed via [http://www.medsmilk.com] on 04/01/2021
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10. UpToDate, Clindamycin (systemic): Drug information. Accessed via [https://www.-uptodate-com.cmdhb.idm.oclc.org/contents/search] on 31/12/2020

Clotrimazole

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Clomazol 1% topical cream ▪ Clomazol 1% vaginal cream (with applicators) ▪ Clomazol 2% vaginal cream (with applicators) **Not subsidised:** ▪ Canesten Clotrimazole 1% vaginal cream ▪ Canesten Clotrimazole 2% vaginal cream ▪ Canesten Clotrimazole 10% vaginal cream ▪ Canesten Clotrimazole 100mg pessary ▪ Canesten Clotrimazole 500mg pessary
Indication:	Treatment of vulvovaginal candidiasis or fungal skin infections
Contra-indications:	Known hypersensitivity to clotrimazole or other azoles.
Cautions	*Vulvovaginal candidiasis:* Vaginal cream may damage latex condoms and diaphragms; sexual intercourse before treatment completion of vulvovaginal candidiasis may transfer infection to sexual partner. Application of the cream to the glans penis of the partner may help prevent re-infection of the female.
Administration and Dosage:	**Adult** *Vulvovaginal candidiasis* A 6 day course is the recommended regimen in pregnancy as longer courses have demonstrated a higher cure rate in pregnant women than shorter courses. Pessaries are also preferred for use in pregnant women as they can be inserted without an applicator, but note that they are not subsidised. ▪ **Pessary** - Insert into the vagina; applicator can be used to insert the pessary but in pregnancy, digital insertion may be preferable to prevent injuring the cervix. Course can be repeated once if necessary - 100mg once daily at night for 6 days OR - 200mg (2 x 100mg) once daily at night for 3 days OR - 500mg at night as a single dose ▪ **Vaginal cream** - Insert 1 applicatorful (5g) into the vagina as deeply as possible. - Vaginal cream 1% - once daily before bed for 6 days OR - Vaginal cream 2% - once daily before bed for 3 days OR - Vaginal cream 10% - once as a single dose before bed *Fungal skin infections or external genital candidiasis* ▪ **Topical cream 1%** - apply to affected area 2-3 times daily for duration of infection and for 2 weeks after infection has resolved
Adverse Effects: (NB this is not a complete list)	*Topical use:* local irritation and hypersensitivity reactions *Vaginal use:* Erythema; stinging; blistering; peeling; oedema; pruritus; urticaria; local irritation

Interactions: (NB this is not a complete list)	None expected with commonly used medicines
Pregnancy:	**Safe to use**; Limited systemic absorption from topical and intravaginal application. Treatment for vulvovaginal candidiasis should preferably be carried out with pessaries (not subsidised) as these can be inserted without using an applicator so there may be less risk of irritating the cervix.
Breastfeeding:	**Safe to use**; minimal absorption from topical and intravaginal application. Clotrimazole applied to the nipples is unlikely to adversely affect the breastfed infant due to poor oral bioavailability. Remove excess cream from the nipples before nursing.
Comments:	*Vaginal use:* Avoid treatment during menstruation.
Patient Information:	Observe general hygiene measures to control sources of infection and re-infection. Complete the treatment course, even if symptoms resolve before completion. *Vaginal use:* Wash hands thoroughly before inserting product into the vagina. Do not use tampons, intravaginal douches, spermicides or other vaginal products during the course of the treatment. Creams may reduce effectiveness and safety of latex products.
Cross Reference:	**Miconazole** – page 109 **Nystatin** – page 118 **Vaginal thrush / candidiasis** – page 33 **Thrush and Breastfeeding** – page 30 **Nappy Rash** - page 26

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1. Briggs GG, Freeman RK. Drugs in Pregnancy and Lactation: A Reference Guide to Fetal and Neonatal Risk. Electronic version accessed via OVID on 18/07/2017
2. Data Sheet Canesten (clotrimazole), Bayer NZ Ltd, prepared on 14/03/2013. Accessed via Medsafe [http://www.medsafe.govt.nz]
3. Data Sheet Clomazol (clotrimazole), Multichem NZ Ltd, prepared on 23/07/2008. Accessed via Medsafe [http://www.medsafe.govt.nz]
4. Hale TW. Medications and Mothers Milk. Online edition accessed via [http://www.medsmilk.com] on 18/07/2017
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Combined Oral Contraceptive Pill

Generic Name	Oestrogen Dose	Brand Name	Oestrogen (micrograms)	Progestogen (micrograms)	Active/ Inert tablets	Subsidy
ethinyloestradiol/ levonorgestrel	Low dose	Microgynon 20 ED	20	100	21/7	Fully subsidised
		Femme-Tab ED				
	Standard dose	Levelen ED	30	150	21/7	Fully subsidised
		Femme-Tab ED				
	Standard dose	Microgynon 30	30	150	21/0	Partially subsidised*
	High dose	Microgynon 50 ED	50	125	21/7	Fully subsidised
ethinyloestradiol/ norethisterone	Standard dose	Brevinor - 1	35	1mg	21/7	Fully subsidised
	Standard dose	Norimin	35	500	21/7	Fully subsidised
ethinyloestradiol/ desogestrel	Low dose	Mercilon 28	20	150	21/7	Fully subsidised
	Standard dose	Marvelon 28	30	150	21/7	Partially subsidised*
ethinyloestradiol/ drospirenone	Low dose	Yaz	20	3mg	21/7	Not subsidised
	Standard dose	Yasmin	30	3mg	21/7	Not subsidised
Antiandrogen Oral Contraceptives						
ethinyloestradiol/ cyproterone acetate	Standard dose	Ginet	35	2mg	21/7	Fully subsidised**
	Standard dose	Estelle	35	2mg	21/7	Not subsidised
		Diane-35				

* *Full subsidy may be obtained through a Special Authority application if patient is either on social welfare benefit OR has an income no greater than the benefit AND has tried at least one of the fully funded options but has been unable to tolerate it.*

** *A 6 month supply may be prescribed when used for contraceptive purposes if the prescription is coded with an "O".*

- *Please refer to Pharmac Schedule for latest funded brands* (http://www.pharmac.govt.nz)

Trade Name, Formulation, Strength and Funding

See table above for available brands and subsidy information. Other non-subsidised brands of the same components are also available.

Indication:

Contraception

- Low dose oestrogen preparations (20 micrograms): appropriate for women with risk factors such as circulatory disease, provided a COC is otherwise suitable.
- Standard dose oestrogen preparations (30-35 micrograms): for standard use.

- Desogestrel or drospirenone: may be considered for women who have adverse effects with other progestogens i.e. acne, headache, depression, breast symptoms or breakthrough bleeding.
- Cyproterone may be considered for women requiring oral contraception as well as treatment for androgen-dependant conditions or polycystic ovary syndrome.

Contra-indications:

Known or suspected pregnancy; active venous or arterial thrombosis; multiple risk factors for arterial disease or venous thromboembolism (VTE) (see cautions below); heart disease associated with pulmonary hypertension; migraine with aura; transient ischaemic attacks without headaches; systemic lupus erythematosus; porphyria; gallstones; history of haemolytic uraemic syndrome; history of pruritus in pregnancy; active liver disease; infective hepatitis; liver tumours; cholestatic jaundice; chorea; pemphigoid gestationis; history of breast cancer (but can be used after 5 years if no evidence of disease and non-hormonal methods are unacceptable); undiagnosed vaginal bleeding.

Cautions

This is only a brief summary - refer to WHO medical eligibility criteria for contraceptive use for detailed information:
http://www.who.int/reproductivehealth/publications/family_planning/Ex-Summ-MEC-5/en/

Or, to The Faculty of Sexual and Reproductive Healthcare guidelines at: http://www.fsrh.org

Arterial disease and migraine; personal or family history of hypertriglyceridaemia; hyperprolactinaemia; history of severe depression; undiagnosed breast mass; gene mutations associated with breast cancer; sickle-cell disease; inflammatory bowel disease; active trophoblastic disease.

VTE or arterial disease risk factors: Use with caution if any of the following risk factors are present, but avoid if 2 or more factors are present:

- Family history of VTE or arterial disease in first degree relative aged under 45 years
- BMI $\geq$30kg/m^2 (but avoid if $\geq$ 35kg/m^2 unless no suitable alternative)
- Hypertension: systolic >140mmHg or diastolic >90mmHg (avoid if systolic >160mmHg or diastolic >95mmHg)
- Long-term immobilisation e.g. wheelchair (avoid if confined to bed or leg in plaster cast)
- History of superficial thrombophlebitis
- Age over 35 years (avoid if over 50 years)
- Smoking (avoid if smoking > 40 cigarettes daily)
- Migraine without aura (avoid if migraine with aura or severe migraines or migraine treated with ergot derivatives)
- Diabetes mellitus (avoid if diabetes complications are present)

Migraine – Women should report any increase in headache frequency or onset of focal symptoms (discontinue immediately and refer urgently to neurology expert for more than 1 hour.

Administration and Dosage:

Adult
Oral

- **21-day packs:** One tablet at approximately the same time each day for 21 days, repeated after a 7 day break.

- **28 day ED (everyday) packs:** One active tablet daily for 21 days, followed by one inactive tablet daily for 7 days, then repeat.

Starting after childbirth:

- **Not breastfeeding:** start 21 days after birth (increased risk of thrombosis if started earlier; starting later than 21 days postpartum requires additional precautions for first 7 days)
- **Breastfeeding:** avoid in the first 6 weeks postpartum as there is insufficient evidence to prove safety while establishing breastfeeding. Ideally postpone initiation until 6 months postpartum, however use between 6 weeks and 6 months postpartum in fully breastfeeding women may in some cases be considered if other methods are not acceptable or available and the benefits outweigh the risks (off-license). Also see "Breastfeeding" below.

Adverse Effects: (NB this is not a complete list)

Common

- Nausea; abdominal pain; headache; depressed/altered mood; breast pain or tenderness

Uncommon

- Vomiting; diarrhoea; fluid retention; migraine; decreased libido; rash; urticaria

Rare

- Contact lens intolerance; increased libido; vaginal or breast discharge; erythema multiforme

Unspecified frequency:

- Liver impairment; hepatic tumours; hypertension; changes in lipid metabolism; chorea; nervousness; reduced menstrual loss; spotting in early cycles; absence of withdrawal bleeding; VTE; amenorrhoea after discontinuation; cervical erosion; visual disturbances; leg cramps; chloasma; photosensitivity; systemic lupus erythematosus; drospirenone may raise potassium serum levels.

NB there is a small increase in the risk of **breast cancer** or **cervical cancer**; the risk diminishes after stopping and disappears by about 10 years. These small risks should be weighed against the protective effect against cancers of the ovary and endometrium.

Reason to stop immediately:

- Sudden severe chest pain
- Sudden breathlessness or cough with blood-stained sputum
- Unexplained swelling or severe pain in calf of one leg
- Severe stomach pain
- Serious neurological effects e.g. severe, prolonged headache , loss of vision, disturbance of hearing, collapse, unexplained seizure, numbness affecting one side or part of the body
- Hepatitis, jaundice, liver enlargement
- Blood pressure >160 mmHg systolic or >95mmHg diastolic
- Prolonged immobility after surgery / leg injury
- Detection of a risk factor which contraindicated treatment

Interactions: (NB this is not a complete list)

Enzyme-inducing antibiotics (rifampicin, rifabutin): reduces effectiveness of COC. Women should be advised to change to an alternative method of contraception.

Enzyme-inducing anti-convulsants (phenytoin, carbamazepine, phenobarbital, primidone, topiramate) and other enzyme-inducing medications (apart from

rifampicin and rifabutin): may reduce effectiveness of COC. Use of a different contraceptive method unaffected by enzyme-inducers (e.g. intrauterine methods or progestogen-only injectable) should be encouraged. For women who do not wish to change methods, the following can be suggested:

- *Short-term treatment (≤ 2 months):* continue to use COC but also use additional precautions e.g. condoms, whilst taking the enzyme-inducing drug and for 28 days after stopping treatment. A minimum COC strength of 30 microgram ethinyloestradiol is recommended. An extended or tricycling regimen should be used with a pill-free interval of 4 days.

- *Long-term treatment (> 2 months):* increase the daily dose of ethinyloestradiol to at least 50 microgram (to a maximum of 70 microgram) during treatment and for 28 days after. An extended or tricycling regimen and pill-free interval of 4 days are recommended but additional contraception is not essential.

Lamotrigine: Reduced serum levels of lamotrigine, therefore potential for increased seizures. Additionally, in the pill-free week, lamotrigine levels may increase, potentially resulting in adverse effects. Ideally, COC should be avoided in women taking lamotrigine and a different form of contraception should be considered, except when lamotrigine is used in combination with sodium valproate as the reduced effect does not occur.

Non enzyme-inducing antibiotics: additional precautions are no longer recommended when taking non enzyme-inducing antibiotics for 3 weeks or less, unless significant vomiting or diarrhoea occurs.

Pregnancy:

Contraindicated; not indicated in pregnancy. There is no known harm to the woman, the fetus or the course of the pregnancy if accidently used during pregnancy.

Breastfeeding:

Consider alternative; The COC does not appear to adversely affect infant developmental outcomes, however, it should preferably be avoided in breastfeeding mothers until weaning or for 6 months postpartum (potential adverse effects on milk supply), but also see "Administration and Dosage" above. Consider an alternative method of contraception i.e. LARC or POP

Comments:

Venous thromboembolism:
The risk of VTE amongst COC users is approximately twice that of non-users but the absolute risk is still very low. COCs containing desogestrel, gestodene and cyproterone are associated with a further increased risk of VTE (1.5-2 times) than those containing levonorgestrel or norethisterone. Drospirenone also seems to be associated with this higher risk. It is important to emphasise however, that the risk is still small and is less than that associated with pregnancy.

Patient Information:

Some irregular bleeding may occur for a month or two after starting COC. If this continues, the woman should discuss with their healthcare provider.

Missed pill:

- *Missing one pill:* Take the forgotten pill as soon as remembered and take the next one at the normal time (even if this means taking 2 pills together).

No additional precautions are necessary.

- *Missing 2 or more pills:* Take an active pill as soon as remembered and resume normal pill-taking. She is not protected from pregnancy until an active pill has been taken daily for 7 days in a row and therefore should either abstain from sex or use an additional method of contraception (e.g. condom) for the next 7 days (the "7-day rule"). If there are less than 7 active pills left in the packet, finish the active pills, miss out the inactive pills and go straight on to the active pills of the next packet. She may not have a period until the end of the second packet, but this is not harmful.
- Emergency contraception is recommended if 2 or more pills are missed from the first 7 in the pack and unprotected intercourse has occurred since last finishing the packet.

Illness:

- If vomiting occurs within 2 hours of taking COC, take another pill as soon as possible.
- If there is persistent vomiting or severe diarrhoea lasting more than 24 hours, the "7-day rule" above should be followed.

Interacting medicines:

- See advice above regarding enzyme-inducing medicines.
- Previous advice which recommended additional contraceptive precautions when taking non-enzyme inducing antibiotics is no longer valid, unless diarrhoea or vomiting occurs. Advise the woman that guidance in the written patient information may differ.
- Some herbal products or complementary therapies may affect the efficacy of the COC – discuss with pharmacist.

Travel:

- Be aware of increased risk of VTE during travel involving long periods of immobility (over 3 hours). The risk may be reduced by appropriate exercise during the journey and possibly by wearing graduated compression hosiery.

Contact doctor immediately if she:

- Gets sudden chest pain
- Coughs up blood
- Becomes breathless
- Has pain in the lower leg
- Has a severe headache

Cross Reference:

Contraception – page 16
Levonorgestrel Implant (Jadelle) – page 9
Levonorgestrel Intrauterine Devices (Mirena, Jaydess) – page101
Medroxyprogesterone Acetate (Depo-Provera) – page 104
Progestogen-Only Pill – page 124
Non-Hormonal Contraceptives - page 117

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Diclofenac Sodium

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Diclofenac Sandoz 25mg, 50mg enteric coated tablets ▪ Apo-Diclo SR 75mg,100mg long-acting tablets ▪ Voltaren 12.5mg, 25mg, 50mg, 100mg suppositories ▪ Voltaren D 50mg dispersible tablets **Not subsidised:** ▪ Voltaren SR 75mg, 100mg long-acting tablets
Indication:	Post-traumatic or post-operative pain, inflammation, swelling
Contra-indications:	1st and 3rd trimester of pregnancy; hypersensitivity to aspirin or any other NSAID including patients in whom attacks of asthma, urticaria or rhinitis have been precipitated by aspirin or other NSAIDs; Myocardial infarction in the last 12 months; severe heart failure; active GI ulcer or bleeding; history of GI ulceration, haemorrhage or perforation; severe renal or hepatic impairment; proctitis (suppositories only)
Cautions	Allergic disorders; coagulation defects; patients at risk of peptic ulceration or GI bleeding; inflammatory bowel disease; cardiac disease; uncontrolled hypertension; peripheral artery disease; cerebrovascular disease; renal or hepatic impairment (contra-indicated if severe)
Administration and Dosage:	**Adult** Oral ▪ **Enteric coated tablets:** 75-150mg daily in 2-3 divided doses. ▪ **Long acting tablets:** 75-150mg daily in 1-2 divided doses. Rectal ▪ **Suppositories:** 75-150mg daily in 2-3 divided doses. **Maximum daily dose by any route is 150mg**
Adverse Effects: (NB this is not a complete list)	**Common** ▪ Epigastric discomfort or pain; nausea; diarrhoea; vomiting; constipation; flatulence; dizziness; headache; drowsiness; insomnia; rash; pruritus; oedema; transient elevation of AST and ALT; palpitations **Infrequent** ▪ Gastric or duodenal ulcerations/bleeding; urticarial; hepatitis with or without jaundice; bronchospasm/asthma; anaphylactic reaction **Rare** ▪ Peptic ulcer with perforation; convulsions; taste disorders; photosensitivity; Stevens-Johnson syndrome; anaemia
Interactions: (NB this is not a complete list)	**Antihypertensives:** possible reduced antihypertensive effect **Ciclosporin, digoxin, lithium:** may cause increased concentrations of these agents with the potential for adverse effects or toxicity. Monitoring required. **Ciprofloxacin or other quinolones:** Possible risk of convulsions; avoid or use combination with caution in patients with epilepsy.

	Diuretics: diclofenac may reduce diuretic effect and also increase risk of acute renal failure. Increased potassium levels may occur when used with potassium-sparing diuretics. **Tacrolimus:** additive nephrotoxic effects **Warfarin:** possible increased risk of haemorrhage; monitor INR
Pregnancy:	**Consider alternative**; Avoid in pregnancy, especially in 3rd trimester (due to risk of prematurely closing the ductus arteriosus, persistent hypertension of the newborn, nephrotoxicity and oligohydramnios) and in the 1st trimester (due to a possible association with a low risk of congenital malformations or spontaneous abortion).
Breastfeeding:	**Safe to use**; Low amounts excreted in the milk; monitor infant for vomiting or diarrhoea.
Comments:	NSAIDs may be associated with an increased risk of serious cardiovascular events; patients with cardiovascular disease or those receiving higher doses for prolonged periods may be more at risk. NSAIDs may cause bronchospasm or induce asthma attacks in some patients with asthma.
Patient Information:	Take oral doses with a large glass of water, with food. Do not crush or chew the enteric coated or long-acting tablets; swallow whole. Disperse the dispersible tablets in a glass of water. Diclofenac may cause some patients to become dizzy, light-headed or less alert; do not drive or operate machinery if affected by this.
Cross Reference:	**Analgesia on Discharge after Caesarean Section** – page 11
Related Guidelines:	**CMH Guideline**: Analgesia and post-operative prescribing for women who have a caesarean section via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A341223

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Docusate Sodium (+/- Sennoside)

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Coloxyl 50mg, 120mg tablets ▪ Laxsol (docusate 50mg + sennoside B 8mg) tablet
Indication:	Stool softener for constipation
Contra-indications:	Appendicitis; undiagnosed rectal bleeding; intestinal obstruction
Cautions	Prolonged or excessive use
Administration and Dosage:	**Adult** Oral ▪ **Coloxyl:** 100-150mg twice daily or 240mg at night. Up to 480mg daily in divided doses may be used if necessary ▪ **Laxsol:** 1 -2 tablets at night
Adverse Effects:	Abdominal cramps; diarrhoea; nausea; rash; electrolyte disturbance. Laxsol may cause discoloration of the urine.
Interactions:	No interactions with commonly used medicines expected.
Pregnancy:	**Docusate: safe to use** **Docusate + senna: considered safe to use;** not known to be harmful but limited information
Breastfeeding:	**Safe to use**; minimal absorption therefore unlikely to be found in breast milk but monitor infant for diarrhoea.
Patient Information:	See constipation monograph for non-pharmacological advice. Do not use for prolonged periods. May cause discolouration of the urine.
Cross Reference:	**Constipation** – page 15
Related Guidelines:	**CMH Guideline:** Laxative guidance for opioid-induced constipation prevention (adult) in **Appendix 4** (page 142) (NB this guideline should only be referred to for the prevention of opioid-induced constipation)

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Domperidone

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Pharmacy Health Domperidone 10mg tablet **Not subsidised:** ▪ Motilium 10mg tablet
Indication:	Galactogogue (unlicensed)
Contra-indications:	Hypersensitivity to domperidone; prolactinoma or prolactinaemia; GI obstruction, perforation or haemorrhage; cardiac conduction disorders; cardiac disease; concomitant use of medicines which are potent inhibitors of CYP3A4 or which prolong the QT interval; moderate or severe liver impairment.
Cautions	Electrolyte disturbances; renal impairment (reduce dosing frequency) Domperidone has been associated with an increased risk of QT interval prolongation, serious ventricular arrhythmias and sudden cardiac death. The risk may be higher with doses greater than 30mg per day, in patients older than 60 years, in patients with significant electrolyte disturbances or underlying cardiac disease. Medsafe have reduced the maximum recommended dose of domperidone in New Zealand from 80mg per day to 40mg per day and they recommend using the lowest effective dose for the shortest duration. See the reference list for details of the Medsafe safety information alert.
Administration and Dosage:	**Adult** Oral ▪ Galactogogue: 10mg three times a day for 7 days. **Doses higher than this do not seem to demonstrate further increases in milk production, but would be expected to cause an increased risk of adverse effects, therefore should be avoided.** Consideration can be given to gradually withdrawing domperidone rather than stopping abruptly, although studies have not demonstrated a clear advantage to either method. The recent EMPOWER trial comparing 28 days of domperidone 10mg tds against 14 days of placebo followed by 14 days of domperidone 10mg tds reported no appreciable increases in milk volume overall with the longer course of therapy. Also note the safety advice above which recommends use for the shortest duration.
Adverse Effects: (NB this is not a complete list)	Dry mouth; diarrhoea; headache; somnolence; anxiety; agitation; rash; breast pain; pruritus; extrapyramidal effects; QT prolongation; cardiac arrhythmias; convulsions; anaphylaxis
Interactions: (NB this is not a complete list)	**Antacids and anti-secretory agents:** may lower bioavailability of domperidone, therefore do not administer at the same time.

	Avoid concurrent use with CYP3A4 inhibitors or medicines which prolongs the QT interval: amiodarone, fluconazole, ketoconazole, tricyclic antidepressants, citalopram, escitalopram, some antipsychotics, erythromycin, clarithromycin, lithium and diltiazem. This list is not exhaustive.
Pregnancy:	**Consider alternative;** Limited human data therefore preferably avoid or use only where benefits are likely to outweigh the risks.
Breastfeeding:	**Considered safe to use**; Small amounts of domperidone are excreted into breast milk, but adverse effects not been found in breastfed infants. Do not use if women and baby has underlying cardiac disorder.
Comments:	**The use of domperidone as a galactogogue is unlicensed and not approved in NZ therefore the NZCOM recommend referring the woman to her family doctor for prescription.** As with unlicensed use of any medicines, it is the prescriber's responsibility to ensure that the woman is both informed of the unapproved status and advised of the benefits and risks of treatment. Right to give informed consent – refer to the Medsafe statement about the "Use of Unapproved Medicines and Unapproved Use of Medicines" at http://www.medsafe.govt.nz/profs/riss/unapp.asp for further information.
Patient Information:	Contains lactose. Seek medical attention if you experience palpitations, dizziness or fainting whilst taking domperidone.
Cross Reference:	**Lactation Problems** – page 24

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Emollients

Types of Emollients	Generic Name	Brand Name	Package Size	Subsidy	Comments
Light Non-Greasy	Wool fat with mineral oil	Alpha-Keri Lotion	1000mL	Partially subsidised	- Often stings - Not moisturising enough for atopic skin
		BK Lotion	250mL 1000mL		
		DP Lotion	250mL 1000mL		
Slightly Greasy	Cetomacrogol Cream	healthE	500g	Fully subsidised	-
Moderately Greasy	Oil in water emulsion	Boucher & Muir O/W Fatty Emulsion Cream	500g	Fully subsidised	-
	White soft paraffin ointment	healthE White Soft Paraffin	450g	Fully subsidised*	
			2500g		
	Glycerol 10% in cetomacrogol cream	Boucher Cetomacrogol with Glycerol ADE Cetomacrogol with Glycerol	500mL 1000mL	Fully subsidised	
Very Greasy	50:50 white soft paraffin and liquid paraffin ointment	Duoleum	400g 475g	Not subsidised	- Rarely stings - Spreads easily
		healthE White Soft/Liquid Paraffin	500mL	Fully subsidised	

** only in combination with a dermatological galenical or as a diluent for a proprietary topical corticosteroid.*

Trade Name, Formulation, Strength and Funding	See table above. Other non-subsidised brands may be available for purchase.
Indication:	For dry and scaling skin disorders; they help to hydrate and soften the skin and act as a barrier to water and external irritants.
Contra-indications:	Hypersensitivity to product or ingredients
Cautions	Emulsifying ointment contains sodium lauryl sulphate which may increase the risk of skin reactions, particularly in eczema, if left on the skin. It has therefore not been included in this section as an emollient, but may be used as a soap substitute – see "Bath Oils and Soap Substitutes" monograph.
Administration and Dosage:	Apply liberally and frequently, even after improvement occurs, as effects are short lived. Apply immediately after washing or bathing to maximise the effect of skin hydration. Apply in the direction of hair growth to reduce the risk of folliculitis.
Adverse Effects:	Adverse effects unlikely. Possible chance of skin reactions at the site of application such as stinging, burning, itching, redness, rash.

Interactions:	None expected
Pregnancy:	**Safe to use**
Breastfeeding:	**Safe to use**
Patient Information:	For external use only. Paraffin based-products in contact with dressings and clothing are easily ignited by a naked flame. Keep away from fire or flames and do not smoke when using these preparations.
Cross Reference:	**Dry Itchy Skin** – page 18 **Dry Skin in the Neonate** – page 19 **Bath Oils and Soap Substitutes** – page 51

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Erythromycin

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ E-Mycin (erythromycin ethyl succinate) 400mg tablets ▪ E-Mycin (erythromycin ethyl succinate) 200mg/5mL, 400mg/5mL oral liquid **Partially subsidised:** ▪ ERA (erythromycin stearate) 250mg, 500mg tablets
Indication:	Used to treat susceptible infections including upper and lower respiratory tract infections, skin and soft tissue infections, PID due to *Neisseria gonorrhoea* and infections caused by *Chlamydia trachomatis*.
Contra-indications:	Hypersensitivity to erythromycin or other macrolide antibiotics; acute porphyria; severe hepatic impairment; concomitant use of terfenadine, astemizole, cisapride, pimozide, ergotamine or dihydroergotamine.
Cautions	Patients with predisposition to QT-interval prolongation; hepatic dysfunction;
Administration and Dosage:	**Adult** Oral ▪ **Erythromycin ethyl succinate:** 400mg every SIX hours or 800mg every TWELVE hours. Up to a maximum dose of 4g/day in divided doses in severe infections. ▪ **Erythromycin stearate:** 250mg every SIX hours or 500mg every TWELVE hours. Up to a maximum dose of 4g/day in divided doses in severe infections. NB the different forms of erythromycin differ in bioavailability. The **salt should be named** when prescribed. The ethyl succinate form is preferred as this is fully subsidised.
Adverse Effects: (NB this is not a complete list)	**Common:** ▪ Nausea; vomiting; abdominal discomfort; diarrhoea **Uncommon:** ▪ hepatotoxicity (including cholestatic jaundice) **Rare:** ▪ pancreatitis; antibiotic-associated colitis; QT-interval prolongation; arrhythmias; hearing loss; tinnitus; Stevens-Johnson syndrome; toxic epidermal necrolysis; hallucination; seizures
Interactions: (NB this is not a complete list)	**Avoid concomitant use with terfenadine, astemizole, cisapride, pimozide.** **Amiodarone, citalopram, escitalopram, domperidone, some anti-psychotics**: increased risk of QT prolongation / arrhythmias. Risk increased in increasing age, cardiac disease and electrolyte disturbances. Preferably avoid concomitant use. **Amlodipine and other calcium channel blockers:** increased adverse effects of the

	calcium channel blocker e.g. hypotension, headache oedema **Carbamazepine, ciclosporin, digoxin, midazolam, theophylline:** erythromycin increases the plasma levels of these medicines. Monitor levels and/or reduce doses as appropriate. **Colchicine:** increased risk of colchicine toxicity **Ergot derivatives e.g. bromocriptine, cabergoline and ergometrine maleate including Syntometrine:** concurrent use with macrolide antibiotics, such as erythromycin, may cause ergotism. Manufacturer advise to avoid concurrent use. **Simvastatin, atorvastatin, pravastatin:** erythromycin markedly increases simvastatin exposure and several cases of rhabdomyolysis have been reported. Temporarily withhold the statin if erythromycin is necessary. **Warfarin:** erythromycin enhances anticoagulant effect of warfarin
Pregnancy:	**1st trimester – consider alternative;** Risk of cardiac malformations in early pregnancy, however, association not found in more recent studies **2nd trimester – safe to use** **3rd trimester – safe to use**
Breastfeeding:	**Safe to use**; excreted into breast milk in small amounts. Observe infant for possible adverse effects such as vomiting, diarrhoea, thrush or rash. Also be aware of a possible link to infantile hypertrophic pyloric stenosis.
Patient Information:	Finish the course Take with food *Oral liquid:* Shake the suspension well before use; store in the fridge Discard 10 days after reconstitution
Cross Reference:	**Endometritis** – page 20 **Mastitis** – page 25

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Flucloxacillin

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Staphlex 250mg, 500mg capsules ▪ AFT 125mg/5mL, 250mg/5mL oral liquid **Not subsidised:** ▪ AFT 250mg, 500mg capsules
Indication:	Treatment of infection due to Gram positive bacteria including skin and soft tissue infections.
Contra-indications:	Known hypersensitivity to flucloxacillin and other penicillins or beta-lactam antibiotics (e.g. cephalosporins) but see Appendix 2 for further details; flucloxacillin-associated hepatic disorders
Cautions	Cholestatic jaundice and hepatitis may occur very rarely with flucloxacillin use, including up to two months after treatment has finished. Administration for more than 2 weeks is a risk factor. Flucloxacillin should not be used in patients with a history of hepatic dysfunction association with flucloxacillin; it should be used with caution in patients with hepatic impairment.
Administration and Dosage:	**Adult** Oral ▪ 250-500mg every SIX hours at least 30 minutes before food
Adverse Effects: (NB this is not a complete list)	**Common:** ▪ Nausea; vomiting **Rare:** ▪ CNS toxicity including convulsions; interstitial nephritis; haemolytic anaemia **Very rarely:** ▪ Hepatitis; cholestatic jaundice **Unspecified incidence:** ▪ Hypersensitivity reactions; rash and skin reactions; pseudomembranous colitis; LFT derangement; thrombocytopenia; neutropenia
Interactions: (NB this is not a complete list)	**Warfarin:** isolated cases of raised INR
Pregnancy:	**Safe to use**; not known to be harmful
Breastfeeding:	**Safe to use**; excreted into breast milk in trace amounts. Observe infant for possible adverse effects such as vomiting, diarrhoea, thrush or rash.

Comments:	During prolonged treatment regular monitoring of hepatic and renal functions is recommended. With high-dose treatment for longer than 5 days, monitor full blood count and electrolyte balance (risk of hypokalaemia and hypernatraemia with high dose)
Patient Information:	Complete the course. Take on an empty stomach, 30 minutes to an hour before food. *Oral liquid:* Shake the suspension well before use; store in the fridge Discard 14 days after reconstitution
Cross Reference:	**Mastitis** – page 25 **Appendix 2** – CMH Poster: Penicillin Allergy – page 133 or http://cmdhbdocuments.healthcare.huarahi.health.govt.nz/docsdir/opendocument.aspx?id=A1386738

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Folic Acid

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Apo-Folic Acid 0.8mg, 5mg tablets ▪ Biomed 50 microgram/mL oral liquid ▪ Ferro-F-Tabs (310mg ferrous fumarate, 350 microgram folic acid) tablets (**see "comments" below**)
Indication:	Prevention of neural tube defects. Treatment of megaloblastic anaemia when folate deficiency is identified.
Contra-indications:	Hypersensitivity to folic acid; megaloblastic anaemia from cyanocobalamin (vitamin B12) deficiency; undiagnosed megaloblastic anaemia; folate-dependant tumours
Cautions	Exclude vitamin B12 deficiency before using folic acid to treat megaloblastic anaemia. Caution in coeliac disease – tablets may contain gluten
Administration and Dosage:	**Adult** Oral ▪ Prevention of neural tube defects: - **Low risk**: 800 micrograms daily from at least 4 weeks before conception and until week 12 of pregnancy. - **High risk** i.e. if either partner has a neural tube defect (or family history of neural tube defect), previous pregnancy affected by neural tube defect, woman has coeliac disease, diabetes mellitus, sickle-cell anaemia or is taking anticonvulsant medicines: 5mg daily from at least 4 weeks before conception and until week 12 of pregnancy. - NB taken <u>throughout</u> pregnancy for multiple pregnancies ▪ Folate-deficient megaloblastic anaemia: 5mg daily for 4 months (until term in pregnant women)
Adverse Effects: (NB this is not a complete list)	**Uncommon/Rare** ▪ GI disturbances; nausea; diarrhoea; flatulence; hypersensitivity reactions such as bronchospasm, erythema, fever, rash or itching.
Interactions: (NB this is not a complete list)	**Anticonvulsants (carbamazepine, phenobarbital, phenytoin, primidone):** potential for reduced plasma level of anticonvulsant; monitor level and adjust dose accordingly. **Sulfasalazine:** reduced folic acid absorption
Pregnancy:	**Safe to use**

Breastfeeding:	**Safe to use**
Comments:	Women who have not been taking folic acid and who suspect they are pregnant should start at once and continue until week 12 of pregnancy. Ferro-F-Tabs is **not** suitable for use in first trimester as it does not provide enough folic acid for neural tube defect prevention. It is also unsuitable for the treatment of megaloblastic anaemia. Folic acid can be continued throughout pregnancy and lactation for general prophylaxis of folate deficiency if required.
Patient Information:	Tablets contain lactose and wheat starch (gluten). *Folic acid and Iodine* (HE4147) information leaflets can be ordered at: https://www.healthed.govt.nz/
Cross Reference:	**Anaemia** – page 9

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Haemorrhoidal Preparations

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Proctosedyl ointment and suppositories (cinchocaine and hydrocortisone) ▪ Ultraproct ointment and suppositories (cinchocaine, fluocortolone hexanoate and fluocortolone pivalate)
Indication:	Symptomatic relief of external and internal haemorrhoids; anal fissure
Contra-indications:	Hypersensitivity to ingredients; untreated bacterial, viral or fungal infections
Cautions	Systemic absorption possible; prolonged use may cause sensitisation of anal skin; central serous chorioretinopathy
Administration and Dosage:	**Adult** Rectal ▪ **Proctosedyl:** apply ointment to affected area/insert one suppository three times daily for one week, followed by twice daily for one week, then once daily for one week. Duration of treatment should not exceed three weeks ▪ **Ultraproct:** - *Ointment:* apply a small amount to the affected area up to four times daily on the first day, then twice daily for at least one week. - *Suppository*: insert one suppository high into the rectum up to three times daily on the first day, then once daily for one week. - To avoid relapses, treatment should be continued for a minimum of a week, however the total duration of treatment should not exceed four weeks.
Adverse Effects: (NB this is not a complete list)	Local irritation; possibility of systemic adverse effects with prolonged use; rarely allergic skin reactions
Interactions: (NB this is not a complete list)	None known
Pregnancy:	**Considered safe to use;** Limited information available for rectal administration during pregnancy. As a general rule, topical corticosteroids should not be applied during the first trimester of pregnancy. However, not anticipated to be harmful due to low systemic availability. The benefits and risks must be carefully reviewed prior use and recommend to use lowest possible dose for shortest duration.
Breastfeeding:	No formal data but considered acceptable for use during breastfeeding.

Comments:	Local anaesthetic preparations (e.g. cinchocaine) can be absorbed through the rectal mucosa, therefore excessive application should be avoided. Additionally, they may cause sensitisation of the anal skin and therefore should be used for short periods only. Corticosteroid preparations (i.e. hydrocortisone, fluocortolone) should not be used for long periods as they can cause atrophy of the anal skin.
Patient Information:	Clean anal area thoroughly before use. Suppositories and ointment are ideally used after a bowel motion. Ointment may be applied with a finger; for deeper application attach the nozzle, insert in the rectum and squeeze tube from lower end whilst withdrawing. However, for very inflamed and painful lesions, it is advisable to initially apply the ointment internally with the finger rather than inserting the nozzle. Wash hands carefully after use to avoid inadvertent contact of the preparation with the eyes. It is not known if Proctosedyl adversely affects latex condoms and therefore contact should be avoided. Proctosedyl and Ultraproct suppositories should be stored in the fridge. Contact doctor if experiencing any changes in vision, including blurred vision.
Cross Reference:	**Haemorrhoids** – page 21

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2. Data sheet Proctosedyl, Sanofi-Aventis NZ Ltd, date of preparation 20/06/2016. Accessed via Medsafe [http://www.medsafe.govt.nz]
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Ibuprofen

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Relieve 200mg tablets ▪ Ibuprofen SR BNM 800mg long acting tablets ▪ Ethics 20mg/mL oral liquid NB other brands and formulations are available for purchase at pharmacies.
Indication:	Analgesia, post-traumatic or post-operative pain, inflammation, swelling
Contra-indications:	1st and 3rd trimester of pregnancy; hypersensitivity to aspirin or any other NSAID including patients in whom attacks of asthma, urticaria or rhinitis have been precipitated by aspirin or other NSAIDs; severe heart failure; active GI ulcer or bleeding; history of GI ulceration, haemorrhage or perforation
Cautions	Allergic disorders; coagulation defects; patients at risk of peptic ulceration or GI bleeding; inflammatory bowel disease; cardiac disease; uncontrolled hypertension; peripheral artery disease; cerebrovascular disease; renal impairment; dehydration
Administration and Dosage:	**Adult** Oral ▪ **Immediate release:** 200-400mg 3-4 times daily; maximum 2.4g daily ▪ **Modified release:** 1.6g as a single dose, preferably in the evening. Increased in severe cases to 2.4g daily in 2 divided doses.
Adverse Effects: (NB this is not a complete list)	**Common:** ▪ Nausea; vomiting; epigastric pain; diarrhoea; heartburn; constipation; abdominal cramps; flatulence; tinnitus; oedema; dizziness; headache; rash; pruritus; decreased appetite; nervousness; increased blood pressure; sodium and fluid retention; **Uncommon/Rare:** ▪ Depression; insomnia; confusion; urticarial; alopecia; GI haemorrhage; pancreatitis; gastritis; jaundice; abnormal LFTs; anaphylaxis; bronchospasm; melaena; neutropenia; agranulocytosis; anaemia; heart failure
Interactions: (NB this is not a complete list)	**Antihypertensives:** possible reduced antihypertensive effect **Ciprofloxacin or other quinolones:** Possible risk of convulsions; avoid or use combination with caution in patients with epilepsy. **Ciclosporin, digoxin, lithium:** may cause increased concentrations of these agents with the potential for adverse effects or toxicity. Monitoring required. **Diuretics:** diclofenac may reduce diuretic effect and also increase risk of acute renal failure. Increased potassium levels may occur when used with potassium-sparing diuretics.

	Tacrolimus: additive nephrotoxic effects **Warfarin:** possible increased risk of haemorrhage; monitor INR
Pregnancy:	**Consider alternative;** Avoid in pregnancy, especially in 3rd trimester (due to risk of prematurely closing the ductus arteriosus) and in the 1st trimester (due to a possible association with a low risk of congenital malformations or spontaneous abortion).
Breastfeeding:	**Safe to use**; very low levels in the milk.
Comments:	NSAIDs may cause bronchospasm or induce asthma attacks in some patients with asthma.
Patient Information:	Take with a large glass of water, just after food or a meal
Cross Reference:	**Analgesia on Discharge after Caesarean Section** – page 11
Related Guidelines:	**CMH Guideline**: Analgesia and post-operative prescribing for women who have a caesarean section via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A341223

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Iodine

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ NeuroTabs 150 microgram elemental iodine (253 microgram potassium iodate) tablets
Indication:	Prevention of iodine deficiency during pregnancy and breastfeeding
Contra-indications:	Hypersensitivity to iodine, hyperthyroidism (women being treated for hyperthyroidism should not take iodine in pregnancy)
Cautions	Pre-existing thyroid disease (these women should be individually managed to ensure normal thyroid function during pregnancy); high dietary iodine intake
Administration and Dosage:	**Adult** Oral ▪ One tablet (150 microgram) daily during pregnancy and breastfeeding
Adverse Effects:	Hypersensitivity reactions including urticarial, angioedema, fever and eosinophilia, may occur. Very high intakes can produce iodine-induced hyperthyroidism or thyrotoxicosis in those used to very low intakes over a prolonged period.
Interactions:	**Lithium:** the hypothyroid effect of lithium may be enhanced when used with iodides.
Pregnancy:	**Safe to use**; at recommended doses
Breastfeeding:	**Safe to use**; at recommended doses
Patient Information:	This tablet should be taken in addition to eating well and choosing iodine-containing foods such as low-fat milk products, eggs, fish, seafood, commercially prepared bread and iodised salt. *Folic acid and Iodine* (HE4147) information leaflets can be ordered at: https://www.healthed.govt.nz/
Cross Reference:	**Iodine Supplements in Pregnancy** – page 23

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1. HealthEd. Folic acid and Iodine information leaflet, 01/06/2010. Accessed via [https://www.healthed.govt.nz/]
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Iron Supplements

Iron Salt	Brand Name	Iron salt content per tablet	Elemental iron content per tablet	Subsidy	Dose for Iron Deficiency
Ferrous fumarate	Ferro-Tab tablets	200mg	65mg	Fully subsidised	**Prophylaxis:** One tablet once or twice daily **Treatment:** One tablet three times a day
	Ferro-F-Tabs tablets	310mg *(plus 350 microgram folic acid*)*	100mg	Fully subsidised	**Treatment:** One tablet once or twice daily
Ferrous sulfate	Ferodan oral liquid	300mg **(per 10mL)**	60mg **(per 10mL)**	Fully subsidised	**Prophylaxis:** 10mL once daily **Treatment:** 5 – 10mL three times a day
Ferrous sulfate, dried	Ferrograd long-acting tablets**	325mg	105mg	Fully subsidised	**Treatment:** One tablet once daily
	Ferrograd C long-acting tablets**	325mg *(plus 562.4mg ascorbic acid)*	105mg	Not subsidised	**Treatment:** One tablet once daily

**Quantity of folic acid is not adequate for prevention of neural tube defects*
*** Note: poor absorption of long-acting preparation, therefore use second line after ferrous fumarate*

Trade Name, Formulation, Strength and Funding	See table above for available brands and subsidy information. Other non-subsidised brands are also available.
Indication:	Prevention and treatment of iron-deficiency anaemia
Contra-indications:	Thalassaemia; Blood dyscrasias (excluding anaemia); haemochromatosis; inability to absorb oral iron; concomitant blood transfusions or parenteral iron; anaemia not caused by iron deficiency
Cautions	GI disorders e.g. intestinal strictures, diverticular disease. Oral iron, particularly long-acting preparations, can exacerbate diarrhoea in patients with inflammatory bowel disease.
Administration and Dosage:	See above table for suggested **ORAL** doses for prophylaxis and treatment
Adverse Effects: (NB this is not a complete list)	Hypersensitivity; GI irritation including nausea, diarrhoea or constipation (nausea and epigastric pain are dose-related; consideration can be given to reducing the dose or using a different iron salt if this is bothersome).

Interactions: (NB this is not a complete list)	**Antacids:** absorption of iron may be reduced; separate administration as much as possible (at least 2 hours) **Calcium, including calcium-containing food products:** may reduce the absorption of iron; separate administration as much as possible. **Ciprofloxacin and other quinolones:** iron reduces the absorption of ciprofloxacin; take two hours before iron. **Levothyroxine:** iron reduces the effects of levothyroxine; separating administration by 2 hours may not necessarily prevent the interaction therefore a dose adjustment of levothyroxine may be necessary for some. **Methyldopa:** the antihypertensive effects may be reduced by oral iron; monitor effects and increase methyldopa dose if necessary. Separating administration by up to 2 hours may partially reduce the effects of this interaction. **Tea and Coffee:** iron absorption may be reduced by beverages high in polyphenolics such as cocoa, coffee, tea and peppermint tea. Avoid ingesting these beverages at the same time as taking iron supplements. Chamomile tea, green tea and rooibos tea do not appear to significantly affect iron absorption.
Pregnancy:	**Safe to use**
Breastfeeding:	**Safe to use**; small amounts excreted in breast milk. Monitor infant for constipation or diarrhoea.
Comments:	Long-acting preparations have no therapeutic advantage over normal release iron; the low incidence of adverse effects with these preparations may reflect the small amounts of iron available for absorption. Iron preparations that also contain folic acid may be appropriate for women with an iron deficiency who are at high risk of developing a folic acid deficiency. However, they are not appropriate for use as prophylaxis against neural tube defects or for the treatment of megaloblastic anaemia as their folic acid content is insufficient.
Patient Information:	See Anaemia monograph for dietary advice. Although iron preparations are best absorbed on an empty stomach they can be taken after food to improve tolerability if the woman is experiencing gastro-intestinal adverse effects. Iron preparations should be taken with a source of vitamin C, such as orange juice, to maximise the iron absorption. Do not take antacids, iron or calcium within two hours of taking iron. Iron preparations can discolour the stools or urine. Ferodan liquid may temporarily discolour the teeth (brush teeth after administration to minimise this) Swallow long-acting preparations whole. Ferodan liquid may be mixed with water or fruit juice.

Cross Reference:	**Anaemia** – page 9
Related Guidelines:	**CMH Guideline:** Iron deficiency anaemia in pregnancy and post-partum – prevention and management via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A25392

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Lactulose

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Laevolac 10g/15mL oral liquid
Indication:	Constipation
Contra-indications:	Hypersensitivity to active ingredient or excipients; galactosaemia; intestinal obstruction
Cautions	Lactose intolerance; diabetes (but only if very high doses are being used as it *may* elevate blood glucose levels. Minimal effect on blood glucose levels expected with normal doses used for constipation.)
Administration and Dosage:	**Adult** Oral ▪ Initially 15mL twice daily, adjusted according to response
Adverse Effects:	Nausea (can be reduced by administration with water, fruit juice or with meals); vomiting; flatulence; cramps; abdominal discomfort; electrolyte disturbances
Interactions:	Not expected to interact with commonly used medicines.
Pregnancy:	**Safe to use;** systemic absorption of lactulose is low. However, avoid high doses and prolonged use as this may lead to maternal adverse effects,
Breastfeeding:	**Safe to use**; unknown if transfers into breast milk, however it is poorly absorbed so infant exposure is expected to be low.
Patient Information:	May be diluted if required. Take each dose with a large glass of water. Swallow dose in one; do not retain in mouth for an extended period of time. Can take up to 48 hours to start working.
Cross Reference:	**Constipation** – page 15
Related Guidelines:	**CMH Guideline:** Laxative guidance for opioid-induced constipation prevention (adult) in **Appendix 4** (page 142) (NB this guideline should only be referred to for the prevention of opioid-induced constipation)

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1. Briggs GG, Freeman RK. Drugs in Pregnancy and Lactation: A Reference Guide to Fetal and Neonatal Risk. Electronic version accessed via OVID on 19/07/2017
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Levonorgestrel Implant (Jadelle)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Jadelle implant (2 x 75mg rods)
Indication:	Contraception
Contra-indications:	Hypersensitivity to levonorgestrel; known or suspected pregnancy; active venous thromboembolic disorder; steroid sensitive malignancies; undiagnosed vaginal bleeding, acute porphyria; hepatic dysfunction
Cautions	**Refer to WHO medical eligibility criteria for contraceptive use for further information accessible at:** http://www.who.int/reproductivehealth/publications/family_planning/MEC-5/en **Or, to The Faculty of Sexual and Reproductive Healthcare guidelines at:** http://www.fsrh.org Arterial disease; past ectopic pregnancy; active trophoblastic disease; systemic lupus erythematosus with positive or unknown antiphospholipid antibodies; functional ovarian cysts; history of jaundice in pregnancy; disturbances of lipid metabolism.
Administration and Dosage:	**Adult** Subdermal implantation of 2 x 75mg rods: ▪ Not breastfeeding: Can be inserted from day 1 postpartum. If inserted after day 21 postpartum, additional contraceptive cover will be required for 7 days. ▪ Breastfeeding: Manufacturers recommend that Jadelle should not be inserted until 6 weeks postpartum, however in practice it can be considered immediately postpartum (off-license) where the benefits outweigh the risks.
Adverse Effects: (NB this is not a complete list)	Menstrual irregularities; nausea; vomiting; headache; nervousness; dizziness; breast discomfort; depression; vaginal discharge; skin disorders; disturbance of appetite; changes in libido. Jadelle may leave scars at the insertion site. Use of parenteral progestogen-only contraceptives may be associated with a small increased risk of cervical cancer, similar to that seen with COC, but this is not conclusive.
Interactions: (NB this is not a complete list)	**Enzyme-inducing antibiotics (rifampicin, rifabutin) or anti-convulsants (phenytoin, carbamazepine, phenobarbital, primidone, topiramate):** may reduce effectiveness of Jadelle. For long-term treatment, the use of an alternative contraceptive method unaffected by enzyme-inducers (e.g. intrauterine methods or *Depo-Provera*®)

	should be considered. For short-term treatment (< 2 months) in women who do not wish to change contraceptive methods, the implant can be continued but the woman should be advised to use additional precautions (e.g. barrier methods) whilst taking the enzyme-inducing drug and for 28 days after stopping treatment.
Pregnancy:	**Contraindicated;** Not indicated in pregnancy. If pregnancy occurs remove implant.
Breastfeeding:	**Considered safe to use;** Levonorgestrel does not appear to adversely affect the composition of the milk, the growth and development of the infant, or the milk supply.
Comments:	The implant provides cover for 5 years. The manufacturer advises that the implant may not provide effective contraception during the final year for women who weigh over 60kg. These women (>60kg) should be informed that replacement at 4 years can be considered but there is no direct evidence to support earlier replacement currently and there is some debate around the significance and management of this. **The Prescriber Update by Medsafe states the following:** • Jadelle (levonorgestrel implants) is one of the most effective methods of contraception. • The available evidence suggests a small reduction in the efficacy of levonorgestrel with increasing body weight. • Patients over 60 kg have the option to change their Jadelle implants after four years. • Healthcare professionals should discuss with women when to change or remove their Jadelle implants prior to insertion. **The Best Practice Advocacy Centre (BPAC) NZ states the following:** • Jadelle has an average pregnancy rate over a five year period for all women of less than 1%. Clinical trials have shown that although the efficacy of Jadelle is highest in the first four years of use, contraceptive effectiveness is still acceptable in the fifth year of use. Removal or replacement of the rods is advised after the fifth year as effectiveness decreases. • Medsafe recommends that removal or replacement is considered after four years of use, in women who weigh more than 60kg. This is because the serum concentration of levonorgestrel decreases with increased weight, which may reduce levonorgestrel to a less effective level towards the end of the five-year life of the implant. Individual response to levonorgestrel varies and serum concentration alone is not predictive of the risk of pregnancy, but this small decrease in efficacy may be an important consideration for some patients. The annual pregnancy rate in the fifth year of use per 100 women is 1.1 in those weighing more than 60 kg and 0.5–0.9 in those weighing less than 60 kg.
Patient Information:	Full counselling and a patient information leaflet should be provided before administration. Women should be aware that a small proportion of users experience adverse effects from the removal of the implant including multiple or long incisions, pain, difficult removals and/or additional visits for the removal.

Irregular bleeding, or periods that last longer may be experienced, especially in the first 6 months.

Advise the woman to contact her healthcare provider if

- she can no longer feel her implant
- she notices any change in shape of the implant or if it appears to be broken
- her skin changes or she experiences pain around the implant site

Contraceptive effect is rapidly reversed on removal.

Cross Reference:

Contraception – page 16
Combined Oral Contraceptive Pill – page 69
Levonorgestrel Intrauterine Devices (Mirena, Jaydess) – page 101
Medroxyprogesterone Acetate (Depo-Provera) – page 104
Non-Hormonal Contraceptives - page 117
Progestogen-Only Pill – page 124

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Levonorgestrel Intrauterine Device (Mirena, Jaydess)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Mirena 52mg intrauterine contraceptive device ▪ Jaydess 13.5mg intrauterine contraceptive device
Indication:	Jaydess 13.5mg: contraception only Mirena 52mg: contraception, management of heavy menstrual bleeding, endometriosis (unapproved indication), prevention of endometrial hyperplasia during oestrogen replacement treatment
Contra-indications:	Known or suspected pregnancy; current pelvic inflammatory disease on insertion; lower genital tract infection; infected abortion within 3 months; postpartum endometritis; cervicitis; endometrial or cervical malignancy; distorted uterine cavitiy; severe liver disease or liver tumour; unexplained vaginal bleeding; gestational trophoblastic disease, until levels of BhCG are undetectable; breast cancer
Cautions	**Refer to WHO medical eligibility criteria for contraceptive use for further information accessible at:** http://www.who.int/reproductivehealth/publications/family_planning/MEC-5/en **Or, to The Faculty of Sexual and Reproductive Healthcare guidelines at:** http://www.fsrh.org New symptoms or diagnosis of ischaemic heard disease; stroke or transient ischaemic attack; jaundice; epilepsy; long QT syndrome Removal of the device should be considered if the patient experiences jaundice, or severe arterial disease.
Administration and Dosage:	**Adult** **Contraception** • **Mirena**: Insert 1 device into uterine cavity; effective for 5 years • **Jaydess**: Insert 1 device into uterine cavity; effective for 3 years Note: When system is removed (and not immediately replaced) and pregnancy is not desired, remove during the first few days of menstruation, otherwise additional precautions (e.g. barrier methods) should be used for at least 7 days before removal.
Adverse Effects: (NB this is not a complete list)	Menstrual irregularities; abdominal pain; nausea; expulsion; peripheral oedema; weight gain; depression; nervousness; decreased libido; migraine; headache; salpingitis; pelvic pain; vaginitis; ovarian cysts; dysmenorrhoea; breast pain; back pain; acne; hair loss; skin hyperpigmentation; On insertion or removal – vasovagal attack (very rare)

Interactions: (NB this is not a complete list)	Levonorgestrel intrauterine device is not affected by enzyme-inducing drugs or non-enzyme-inducing medications. (There is little systemic progestogenic activity as levonorgestrel is released close to the site of the main contraceptive action)
Pregnancy:	**Contraindicated;** Not indicated in pregnancy. If pregnancy occurs remove implant.
Breastfeeding:	**Considered safe to use;** Levonorgestrel does not appear to adversely affect the composition of the milk, the growth and development of the infant, or the milk supply.
Comments:	The timing and techinique for inserting intrauterince device is critical for its subsequent performance. The healthcare professional inserting or removing the device should be fully trained in the technique and experienced and should provide full counselling backed by written information for the patient to take away. Prior to insertion, an assessment for the risk of sexually transmitted diseases (STIs) should be undertaken. If a patient has signs or symptoms suggestive of an STI or infection, investigation and treatment (if necessary) should be under taken before insertion of intrauterine device.
Patient Information:	Full counselling and a patient information leaflet should be provided before administration. Women must know how to check for threads of device to ensure correct placement. Contact doctor immediately if women experiences severe pelvic pain after insertion of the device (worse than period cramps), pain or increased bleeding after insertion of the device which continues for more than a few weeks, sudden changes in periods, pain during intercourse, or if cannot feel the threads of the device. **Refer to NZ family planning for more information:** https://www.familyplanning.org.nz/advice/contraception/intra-uterine-device-iud
Cross Reference:	**Contraception** – page 16 **Combined Oral Contraceptive Pill** – page 69 **Levonorgestrel Implant (Jadelle)** - page 98 **Medroxyprogesterone Acetate (Depo-Provera)** – page 104 **Non-Hormonal Contraceptives** - page 117 **Progestogen-Only Pill** – page 124

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Medroxyprogesterone Acetate (Depo-Provera)

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Depo-Provera 150mg/mL injection
Indication:	Contraception
Contra-indications:	Hypersensitivity to medroxyprogesterone; known or suspected pregnancy; active venous thromboembolic disorder; hepatic dysfunction; sex steroid sensitive malignancies; undiagnosed vaginal bleeding; uncontrolled hypertension; acute porphyria;
Cautions	**Refer to WHO medical eligibility criteria for contraceptive use for further information (accessible at** http://www.who.int/reproductivehealth/publications/family_planning/Ex-Summ-MEC-5/en/**)** **Or, to The Faculty of Sexual and Reproductive Healthcare guidelines at:** http://www.fsrh.org Arterial disease; past ectopic pregnancy; active trophoblastic disease; systemic lupus erythematosus with positive or unknown antiphospholipid antibodies; functional ovarian cysts; history of jaundice in pregnancy; disturbances of lipid metabolism. Medroxyprogesterone has been associated with a small loss of bone mineral density which is usually recovered after discontinuation. Alternative methods of contraception may be more appropriate for women with significant lifestyle and/or medical risk factors for osteoporosis (e.g. chronic alcohol or tobacco use, low body mass index, strong family history of osteoporosis). A re-evaluation of risks and benefits of treatment should be carried out every 2 years in those who wish to continue use.
Administration and Dosage:	**Adult** Deep intramuscular injection ▪ 150mg repeated every 12 weeks (but can be administered every 14 weeks without affecting efficacy, although this is off-license) *Starting after childbirth:* ▪ Not breastfeeding: start within 5 days postpartum ▪ Breastfeeding: The manufacturer advises to delay the first injection until 6 weeks postpartum, however in practice it can be considered immediately postpartum (off-license) after careful consideration of the risks and benefits. The woman should be warned that she may experience heavy or prolonged bleeding. Also see “Comments” and “Breastfeeding” below. Shake vigorously before administration to ensure complete suspension of the contents; administer by deep intramuscular injection into the gluteal or deltoid muscle. Emergency resuscitation equipment must be available.

Adverse Effects: (NB this is not a complete list)	Menstrual irregularities; nausea; vomiting; headache; constipation; diarrhoea; dry mouth; dizziness; breast discomfort; depression; skin disorders; disturbance of appetite; changes in libido; injection site reactions; fluid retention; weight gain; convulsions; confusion; abdominal pain; cholestatic jaundice; sweating; hypersensitivity reactions; leg cramps There is possibly a weak association between injectable progestogen-only contraceptives and breast cancer, however any increased risk is likely to be small and reduce with time after stopping. There is also a weak association with cervical cancer when medroxyprogesterone acetate is used for 5 years or longer. Any increased risk appears to reduce with time after stopping and could be due to confounding factors. Some patients may experience a decreased glucose tolerance; therefore diabetic patients should be carefully monitored.
Interactions: (NB this is not a complete list)	Depot medroxyprogesterone acetate is not affected by enzyme-inducing drugs or non-enzyme-inducing antibiotics. **Warfarin:** INR may be affected. Potential for increased risk of developing haematoma at the injection site but this is not confirmed.
Pregnancy:	**Contraindicated;** Not indicated in pregnancy.
Breastfeeding:	**Considered safe to use;** (IM contraceptive dose). The majority of studies have not demonstrated any adverse effects on the composition, supply or volume of breast milk or on infant growth and development. There are theoretical concerns with sex steroids being transferred via breast milk to a newborn infant as they metabolise them more slowly than an older infant. Manufacturers therefore advise delaying initiation until 6 weeks postpartum, although adverse effects do not seem to have been reported. Consideration can therefore be given to administration in the immediate postpartum period if the benefits are considered to outweigh the risks (NB off-license).
Comments:	There are theoretical concerns that Depo-Provera may be associated with an increased risk of VTE compared to other progestogen-only methods hence some resources recommend weighing up risks and benefits when considering administration in the first 6 weeks after childbirth. If the interval since the previous injection is greater than 14 weeks, rule out pregnancy before the next injection is given and advise the patient to use additional contraceptive measures for 7 days after the injection.

Patient Information:	Patient must receive full counselling backed by written information for the patient to take away. Irregular bleeding, spotting or longer periods may be experienced at the beginning of treatment; this usually decreases with continued use. Possibility of delayed fertility upon stopping for up to a year.
Cross Reference:	**Contraception** – page 16 **Combined Oral Contraceptive Pill** – page 69 **Levonorgestrel Implant (Jadelle)** – page 98 **Levonorgestrel Intrauterine Devices (Mirena, Jaydess)** – page 101 **Non-Hormonal Contraceptives** - page 117 **Progestogen-Only Pill** – page 124

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Metronidazole

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Metrogyl 200mg, 400mg tablets ▪ Flagyl-S 200mg/5mL oral liquid ▪ Flagyl 500mg suppositories
Indication:	Anaerobic antibacterial agent for the treatment of susceptible infections e.g. treatment of post-operative wound infection, urogenital trichomoniasis, bacterial vaginosis, pelvic inflammatory disease (in combination with other antibiotics)
Contra-indications:	Hypersensitivity to metronidazole; active organic disease of CNS
Cautions	History of blood dyscrasias; hepatic encephalopathy; hepatic impairment (dose may need reducing); disulfiram-like reaction with alcohol Increased risk of neurotoxicity and blood dyscrasias with high doses or prolonged treatment, therefore clinical and laboratory monitoring advised if treatment exceeds 10 days.
Administration and Dosage:	**Adult** Oral ▪ **Anaerobic infections:** 400mg every EIGHT hours, usually 7 days ▪ **Bacterial vaginosis:** 400mg every TWELVE hours for 5-7 days OR 2g as a single dose. NB the 2g single dose has a lower cure rate (60%) and is not the preferred regimen for pregnant women as it produces high serum levels. ▪ **Pelvic inflammatory disease:** 400mg every TWELVE hours for 14 days ▪ **Urogenital trichomoniasis:** 2g as a single dose or 400mg every TWELVE hours for 7 days if intolerant to stat dose Rectal ▪ **Anaerobic infections:** 1g every EIGHT hours for 3 days, then 1g every TWELVE hours, usually for 7 days in total
Adverse Effects: (NB this is not a complete list)	**Unknown frequency:** ▪ Nausea; vomiting; diarrhoea; taste disturbances; furred tongue; oral mucositis **Uncommon:** ▪ QT interval prolongation **Rare:** ▪ Anaphylaxis **Very Rare:** ▪ Hepatitis; jaundice; pancreatitis; drowsiness; dizziness; headache; psychotic disorders; darkening of urine; blood dyscrasias; myalgia; visual disturbances; skin reactions; encephalopathy

Interactions: (NB this is not a complete list)	**Alcohol:** A disulfiram-like reaction can occur (flushing, tachycardia, headache, nausea, vomiting, abdominal cramps). Alcohol should be avoided whilst taking metronidazole and for at least a day after the course has finished. **Ciclosporin, lithium, phenytoin:** metronidazole may alter the levels of these medicines; monitor and adjust doses if appropriate. **Phenobarbital, phenytoin, primidone:** may reduce the effects of metronidazole **Warfarin:** possible increased anticoagulant effect; monitor INR
Pregnancy:	**1st trimester – consider alternative**; use in the first trimester remains controversial but may be acceptable in circumstances where there is an appropriate indication and the benefits outweigh the risks. **2nd and 3rd trimester – considered safe to use** The manufacturer advises against the single high-dose regimens in pregnancy.
Breastfeeding:	**Considered safe to use;** Observe infant for possible adverse effects such as vomiting, diarrhoea, thrush, rash, dry mouth or brown urine. Some resources recommend interruption of breastfeeding for 12-24 hours if single high-dose therapy is used. The taste of the breast milk may be altered and the baby may find it unpleasant tasting.
Patient Information:	May darken the urine. May cause drowsiness, confusion, dizziness, hallucinations or transient visual disorders, therefore do not drive or operate machines until these effects have subsided. Finish the course. Do not drink alcohol whilst taking this medicine. Tablets: take during or after a meal. Swallow whole. Oral liquid: take at least an hour before a meal Suppositories: may damage latex of condoms or diaphragms
Cross Reference:	**Bacterial Vaginosis** – page 13 **Endometritis** – page 20 **Trichomoniasis** – page 31

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Miconazole

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Micreme H (miconazole 2%, hydrocortisone 1%) cream ▪ Micreme (miconazole 2%) vaginal cream with applicator ▪ Multichem (miconazole 2%) cream **Partially subsidised:** ▪ Daktarin (miconazole 2%) lotion ▪ Daktarin (miconazole 2%) tincture
Indication:	Fungal skin infections or vulvovaginal candidiasis
Contra-indications:	Hypersensitivity to miconazole or excipients Micreme H: viral disease of the skin (herpes or chickenpox); infections caused by Gram-negative bacteria. Avoid application to the face, extensive areas or under occlusive dressings.
Cautions	Avoid contact with eyes; vaginal cream may damage latex condoms and diaphragms; sexual intercourse before treatment completion of vulvovaginal candidiasis may transfer infection to sexual partner.
Administration and Dosage:	**Adult** *Fungal skin infections* ▪ **Cream, lotion or tincture:** Apply twice daily to affected area, continuing for 10 days after lesions have healed ▪ **Micreme H cream** (also contains hydrocortisone - may be useful where inflammatory symptoms are predominant): Apply sparingly to lesion once to twice daily. Avoid long-term treatment; consider changing to miconazole cream alone when inflammatory symptoms have disappeared. *Vulvovaginal candidiasis* ▪ **Vaginal cream:** Insert 1 applicatorful (5g) deep into the vagina once daily before bed for 7 days. The applicator should be inserted with particular caution in pregnancy – see "Comments" below. **Neonate / Infant** *Fungal skin infections/Nappy Rash* ▪ **Cream**: apply twice daily, continuing for 10 days after lesions have healed. ▪ **Micreme H cream** (also contains hydrocortisone - may be useful where inflammatory symptoms are predominant): For infants older than 4 weeks. Apply thinly to affected area once or twice daily; limit treatment to 5-7 days. Consider changing to miconazole cream alone when inflammatory symptoms have disappeared.
Adverse Effects: (NB this is not a complete list)	*Topical use:* local irritation and hypersensitivity reactions *Vaginal use:* Erythema; stinging; blistering; peeling; oedema; pruritus; urticaria; local irritation

Interactions: (NB this is not a complete list)	**Warfarin:** increased anticoagulant effect, even with topical use. Avoid concurrent use, but if it is necessary, monitor INR and adjust warfarin dose as needed.
Pregnancy:	**Safe to use;** Compatible due to limited systemic absorption. See "Comments" below regarding use of the applicator in pregnant women.
Breastfeeding:	**Safe to use**; Poor oral absorption therefore no risk to infant via the milk is expected. If miconazole cream is being used for thrush of the mother's nipple, it should be applied after a feed, and the nipple washed gently before the next feed.
Comments:	Clotrimazole pessaries (not subsidised) which can be inserted digitally may be preferred for the treatment of vulvovaginal candidiasis in pregnant patients as the applicator used to insert miconazole cream has the potential to irritate the cervix.
Patient Information:	Observe general hygiene measures to control sources if infection and re-infection. Complete the treatment course, even if symptoms resolve before completion. *Vaginal use:* Wash hands thoroughly before inserting into the vagina. Do not use tampons, intravaginal douches, spermicides or other vaginal products during the course of the treatment. Damages latex condoms and diaphragms
Cross Reference:	**Clotrimazole** – page 67 **Nappy rash** – page 26 **Nystatin** – page 118 **Thrush and Breastfeeding** – page 30 **Vaginal thrush / candidiasis** – page 33

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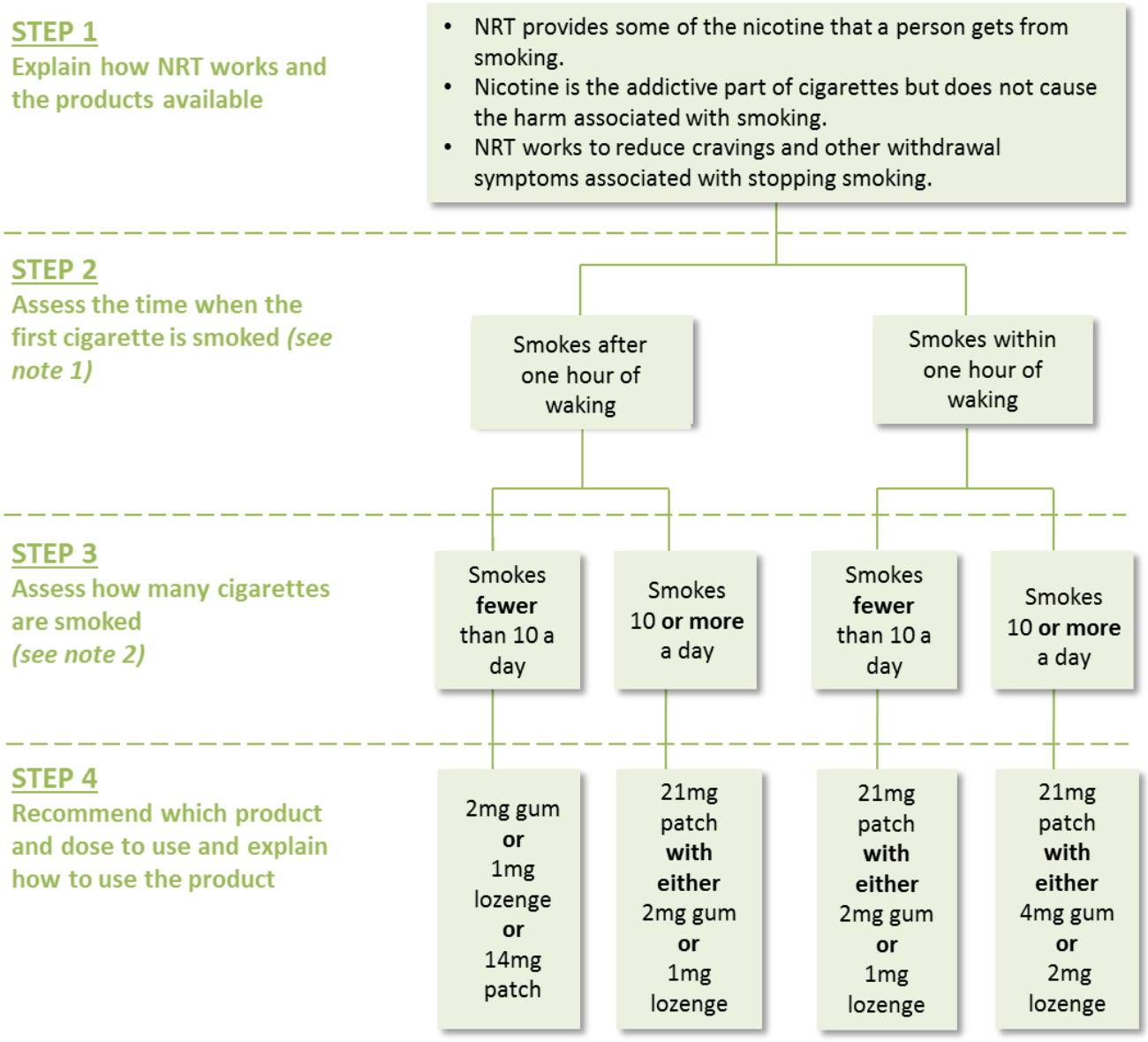
Nicotine Replacement Therapy

Product selection and dosing:

(adapted from the MOH Guide to Prescribing Nicotine Replacement Therapy)



Notes

1.Time to first cigarette is used as a measure of tobacco dependence. If a person smokes within one hour of waking they have a higher degree of dependence and are likely to benefit from higher doses of NRT and more intensive stop-smoking support

2. If a client has recently cut down then use their previous daily consumption

Trade Name, Formulation, Strength and Funding

Fully subsidised:

- Habitrol 7mg, 14mg, 21mg 24 hour patch
- Habitrol 2mg, 4mg gum (fruit or mint flavour)
- Habitrol 1mg, 2mg lozenge

Not subsidised:

- Nicorette 10mg, 15mg inhaler
- Nicorette 1mg/actuation oral spray
- Nicorette 5mg, 10mg, 15mg, 25mg 16 hour patch
- Nicorette 2mg, 4mg gum

	▪ Nicotrol 5mg, 10mg, 15mg 16 hour patch ▪ Nicotrol 2mg, 4mg gum NRT will not be funded under the Dispensing Frequency Rule in amounts less than 4 weeks of treatment. Other brands are also available for purchase.
Indication:	Smoking cessation or reduction.
Contra-indications:	Non-smokers; hypersensitivity to adhesives (patches) The use of NRT in an individual who is already accustomed to nicotine, introduces few new risks and it is widely accepted that there are no circumstances in which it is safer to smoke than to use NRT.
Cautions	Phaeochromocytoma; uncontrolled hypothyroidism; diabetes mellitus (monitor blood glucose levels); myocardial infarction, cerebrovascular accident; moderate to severe hepatic impairment; severe renal impairment **Oral preparations:** oesophagitis; gastritis; peptic ulcers **Gum:** may stick to and damage dentures **Inhaler:** obstructive lung disease; chronic throat disease **Patches:** skin disorders; do not place on broken skin
Administration and Dosage:	See flow chart above for advice on product selection and doses. Choose formulation according to the smoker's likely adherence, previous experience of smoking-cessation aids, contra-indications, adverse effects and the smoker's preference. **Adult** *Chewing gum* ▪ Maximum 40mg daily (24mg if used in combination with patches) ▪ Chew until taste becomes strong, then rest it between cheek and gum; when taste starts to fade, repeat this process. 1 piece of gum lasts for about 30 minutes. *Lozenge* ▪ Maximum of 25 x 1mg lozenges (12 if being used in combination with patches) or 15 x 2mg lozenges daily. ▪ Slowly suck lozenge until taste becomes strong, then rest it between cheek and gum; when taste starts to fade, repeat this process. 1 lozenge lasts for about 30 minutes. *Patch* ▪ 24 hour patches (**also see "Pregnancy" section below**) o 21mg patch: use once daily for 3-4 weeks, then 14mg patch once daily for 3-4 weeks, then 7mg patch once daily for 3-4 weeks o 14mg patch: use for 3-8 weeks, then 7mg patch for 3-4 weeks ▪ 16 hour patches (wear for 16 hours of the day only) *(not subsidised)* o Apply 15mg patch once daily for 8 weeks, then 10mg patch once daily for 2 weeks, then 5mg patch once daily for 2 weeks ▪ Apply on waking to dry, non-hairy skin on hip, trunk or upper arm. Hold in position for 10-20 seconds to ensure adhesion. Remove old patch and place next patch on a different area. Avoid using the same site for several days.

Inhaler **(not subsidised)**

- Use when the urge to smoke occurs. Usual daily dose is 6-12 of the 10mg cartridges or 3-6 of the 15mg cartridge
- Maximum of 12 x 10mg cartridges or 6 x 15mg cartridges daily when used in combination with patches.
- Insert cartridge into device and draw air through the mouth piece. The amount of nicotine from 1 puff of the cartridge is less than that from a cigarette, therefore it is necessary to inhale more often than when smoking a cigarette.
- A 10mg cartridge lasts for approximately 4 sessions of 20 minutes; a 15mg cartridge lasts for approximately 7 sessions of 40 minutes.

Oral spray **(not subsidised)**

- Use 1-2 sprays into the inside of the cheek when the urge to smoke occurs.
- Maximum of 2 sprays per episode (up to 4 sprays every hour), to a maximum of 64 sprays daily. If using in combination with patches use 1-2 sprays per episode (up to 2 sprays every hour), to a maximum of 32 sprays daily.
- Release spray into mouth, holding the spray as close to the mouth as possible and avoiding the lips. Aim spray at the inside of the cheek. Do not inhale whilst spraying; avoid swallowing for a few seconds after use.
- For first use, prime the unit before administration.

Continue for at least 8 weeks; usually regimens last for 12 weeks, however people can continue to use NRT beyond this if they need to.

Adverse Effects: (NB this is not a complete list)

Adverse effects may sometimes be confused with nicotine withdrawal symptoms e.g. malaise, headache; dizziness; sleep disturbance; coughing; flu-like symptoms, depression, irritability, weight gain and anxiety. Most withdrawal symptoms disappear within 4 weeks.

GI disturbances may occur but are most likely associated with swallowed nicotine in oral preparations, e.g. nausea, vomiting, dyspepsia and hiccup.

Gum: throat irritation; increased salivation; palpitations

Inhaler: throat irritation; palpitations; nasal congestion; atrial fibrillation

Lozenge: throat irritation; dry mouth; increased salivation; diarrhoea; constipation; dysphagia; oesophagitis; gastritis; mouth ulcers; bloating; flatulence; taste disturbance; thirst; halitosis; gingival bleeding; chest pain; rash; hot flush

Patch: dry mouth; arrhythmia; chest pain; palpitations; abnormal dreams; arthralgia; myalgia; skin irritation or site reaction; sweating

Oral spray: throat irritation; increased salivation; watery eyes; dry mouth; abdominal pain; flatulence; taste disturbance; palpitations; chest pain; paraesthesia; rash; hot flushes; sweating; myalgia

Interactions: (NB this is not a complete list)

Smoking increases the metabolism of some drugs (including **theophylline, warfarin, olanzapine, haloperidol**) and therefore doses of these medicines may need adjusting when smoking is discontinued.

Pregnancy:

Consider alternative; however the use of NRT in pregnancy is preferable to the continuation of smoking. The intermittent preparations such as the gum and

	lozenges are preferred to the patches in pregnancy as they deliver a lower total daily dose of nicotine. However, if a patch is judged to be the most appropriate product and the 24 hour patch is prescribed, it should be worn during waking hours only and removed just before going to bed. A new patch should be applied in the morning. Avoid liquorice-flavoured NRT products in pregnant women.
Breastfeeding:	**Consider alternative;** Nicotine is present in milk, however the amount to which the infant is exposed is small and less hazardous than second hand smoke. Monitor infant for vomiting, diarrhoea or rapid heartbeat. For intermittent preparations such as gum and lozenges, try to use just after breastfeeding to minimise the infant's exposure to nicotine.
Comments:	The MoH recommends that every person's smoking status should be queried when attending any health care service. All smokers should be advised to stop and strongly encouraged to use cessation support. CMH provide a free stop smoking service for women and their whaanau with incentives for becoming Smokefree for both pregnant women and postnatal women. A 12 week behavioural support programme is delivered in people's homes or at various locations across South Auckland. Referrals can be made via Paanui or MCIS, emailing Smokefree@middlemore.co.nz, texting NOW to 590 or calling 0800 569 568 (option 6)
Patient Information:	See directions in "Administration and Dosage" above for how to use the different preparations. Keep NRT products out of the reach of children and ensure that patches are carefully disposed of as they may still contain residual nicotine even after use. *Oral:* Avoid acidic beverages such as coffee or fruit juice for 15 minutes before NRT as they may decrease the absorption of nicotine through the buccal mucosa *Patches:* Do not cut the patches.
Cross Reference:	**Smoking** – page 29

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Nitrofurantoin

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Macrobid 100mg modified release capsules ▪ Nifuran 50mg, 100mg tablets
Indication:	Urinary tract infection
Contra-indications:	Hypersensitivity to nitrofurantoin; G6PD deficiency; acute porphyria; renal impairment (creatinine clearance <60mL/min)
Cautions	Anaemia; diabetes mellitus; electrolyte imbalance; folate and vitamin B deficiency; pulmonary disease; susceptibility to peripheral neuropathy; liver impairment
Administration and Dosage:	**Adult** Oral, modified release ▪ **Acute, uncomplicated infection:** 100mg every TWELVE hours with food for 5 – 7 days (7 days in pregnancy, but avoid after 36 weeks gestation) Oral, immediate release ▪ **Acute, uncomplicated infection:** 50mg - 100mg every SIX hours with food for 5 – 7 days (7 days in pregnancy, but avoid after 36 weeks gestation) ▪ **Severe chronic recurrent infection:** 100mg every SIX hours with food for 7 days ▪ **Prophylaxis of UTI:** 50-100mg at night There is no advantage on taking immediate release over modified release. However, different formulations may vary in their indications and administration frequency. Please make clear distinction between formulations when prescribing.
Adverse Effects: (NB this is not a complete list)	Anorexia; nausea; vomiting; diarrhoea; acute and chronic pulmonary reactions (pulmonary fibrosis – generally tends to be associated with long term treatment and therefore should not be used for prophylaxis for more than 6 months in duration); peripheral neuropathy; hypersensitivity reactions including angioedema and anaphylaxis; rash; urticaria; cholestatic jaundice; hepatitis; erythema multiforme; pancreatitis; blood disorders
Interactions: (NB this is not a complete list)	**Antacids containing magnesium trisilicate:** impaired rate and extent of absorption of nitrofurantoin. **Uricosuric drugs such as probenecid and sulphinpyrazone:** increased nitrofurantoin plasma levels which may increase toxicity as well as resulting in reduced urinary levels which may lessen its antibacterial effect.
Pregnancy:	**1st and 2nd trimester – Safe to use** **3rd trimester – monitoring required;** Avoid during labour, delivery or close to term due to increased risk of neonatal jaundice and haemolytic anaemia.

Breastfeeding:	**Considered safe to use;** Present in breast milk in very small amounts and can be used when breastfeeding healthy, older infants. However, use with caution if infant has G6PD deficiency or if infant is less than 1 month of age with hyperbilirubinaemia due to potential for haemolysis and displacement of bilirubin. Observe infant for possible adverse effects such as vomiting, diarrhoea, thrush, rash or jaundice.
Comments:	A false positive reaction for glucose in the urine may occur.
Patient Information:	Complete the course. Take with food May colour the urine yellow or brown, but this is harmless. Patients taking nitrofurantoin for long-term prophylactic use should be advised to report the development of a persistent cough or shortness of breath as this may be indicate a severe pulmonary reaction and the need to discontinue therapy.
Cross Reference:	**Urinary Tract Infection** – page 32
Related Guidelines:	**CMH Guideline**: Urinary Tract Infection in Pregnancy in **Appendix 3** (page 134) or via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A2815 for the latest version.

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Non-Hormonal Contraceptives

Trade Name, Formulation, Strength and Funding	**CONDOMS** **Fully subsidised:** ▪ Gold Knight ▪ Moments ▪ Shield XL Other brands are available for purchase
Indication:	Contraception
Contra-indications:	Latex allergy (latex-free condoms are available for purchase)
Adverse Effects: (NB this is not a complete list)	Irritation (discontinue use if this occurs)
Comments:	Prescribe generically as "condoms without spermicide". Prescribe in multiples of 12; the maximum number of condoms that can be prescribed on a prescription is 144 condoms, which is considered to be sufficient to meet the requirements of most over a 3-month period. Spermicidal agents do not give adequate protection if used alone; they are suitable for use with barrier methods, such as diaphragms or caps; however, spermicidal contraceptives are not generally recommended for use with condoms, as there is no evidence of any additional protection compared with non-spermicidal lubricants.
Patient Information:	Check expiry or use-by-date before use. Some vaginal products, such as anti-fungal creams, may damage latex condoms and diaphragms. Water-based lubricants should be used as oil-based lubricants such as petroleum jelly (Vaseline) and baby oil are likely to damage condoms and diaphragms made from latex rubber.

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1. New Zealand Online Pharmaceutical Schedule January 2021 accessed via [http://www.pharmac.govt.nz]

Nystatin

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Nilstat 100,000 units per mL oral liquid ▪ Nilstat 100,000 units per 5g vaginal cream **Partially subsidised:** ▪ Nilstat 500,000 units tablets ▪ Nilstat 500,000 units capsules
Indication:	Oral and perioral candidiasis; intestinal candidiasis; vulvovaginal candidiasis; fungal skin infections due to *Candida spp*.
Contra-indications:	Hypersensitivity to nystatin
Cautions	*Topical use:* avoid contact with eyes and mucous membranes *Vaginal use:* vaginal cream may damage latex condoms and diaphragms; sexual intercourse before treatment completion of vulvovaginal candidiasis may transfer infection to sexual partner.
Administration and Dosage:	**Adult** *Oral and perioral candidiasis* ▪ **Oral liquid:** 100,000 units (1mL) 4 times daily after food. Hold in the mouth and swirl around as long as possible before swallowing. Usually continued for 7 days; continue for 48 hours after lesions have resolved. *Fungal skin infections* ▪ **Cream:** apply liberally twice daily to affected areas, continuing for 7 days after lesions have healed. *Intestinal candidiasis* ▪ **Tablets, capsules:** 500,000 to 1 million units every EIGHT hours; continue treatment for 48 hours after clinical cure *Vulvovaginal candidiasis* ▪ **Vaginal cream:** insert 1 applicatorful (5g) deep into the vagina, once or twice daily for 2 weeks. The applicator should be inserted with particular caution in pregnancy – see "Comments" below **Neonate** *Oral and perioral candidiasis* ▪ **Oral liquid:** 100,000 units (1mL) 4 times daily after feeds. Usually for 7 days; continue for 48 hours after lesions have resolved. ▪
Adverse Effects: (NB this is not a complete list)	*Oral liquid:* Oral irritation and sensitisation; nausea *Cream:* Local irritation; hypersensitivity reactions *Tablets, capsules:* Nausea; vomiting; diarrhoea *Vaginal cream:* Erythema; stinging; blistering; peeling; oedema; pruritus; urticarial;

	local irritation
Interactions:	None expected with commonly used medicines
Pregnancy:	**Safe to use** ; oral absorption extremely low.
Breastfeeding:	**Safe to use** ; oral absorption extremely low. To minimise infant exposure to the medicine, remove any excess cream from the nipple area before breastfeeding.
Comments:	Clotrimazole pessaries (not subsidised) which can be inserted digitally may be preferred for the treatment of vulvovaginal candidiasis in pregnant patients as the applicator used to insert nystatin cream has the potential to irritate the cervix.
Patient Information:	Observe general hygiene measures to control sources of infection and re-infection. Complete the treatment course, even if symptoms resolve before completion. *Oral liquid:* Administer dose under tongue or in the buccal cavity and hold in the mouth as long as possible before swallowing. Use after food. *Vaginal cream:* Wash hands thoroughly before inserting into the vagina. Do not use tampons, intravaginal douches, spermicides or other vaginal products during the course of the treatment. Creams may reduce effectiveness and safety of latex products. Continue use throughout menstruation.
Cross Reference:	**Clotrimazole** – page 67 **Miconazole** – page 109 **Nappy rash** – page 26 **Thrush and Breastfeeding** – page 30 **Vaginal thrush / candidiasis** – page 33

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Omeprazole

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Omeprazole Actavis 10mg, 20mg, 40mg capsules
Indication:	Intractable heartburn / gastro-oesophageal reflux disease unresponsive to alginates or antacids
Contra-indications:	Hypersensitivity to omeprazole or any other excipients
Cautions	May mask symptoms of gastric cancer
Administration and Dosage:	**Adult** Oral ▪ 10-20mg once daily for 4 weeks, continued for further 4 weeks if not fully healed; maximum 40mg once daily for up to 8 weeks.
Adverse Effects: (NB this is not a complete list)	Nausea; vomiting; diarrhoea; abdominal pain; flatulence; headache; dizziness; rash; fatigue; arthralgia; myalgia; fever; agitation; hyponatraemia; hypomagnesaemia; interstitial nephritis; hepatitis; jaundice; visual disturbances; psychiatric reactions; blood disorders; rebound acid hypersecretion and protracted dyspepsia after stopping prolonged treatment
Interactions: (NB this is not a complete list)	**Clopidogrel:** omeprazole might reduce the antiplatelet effects of clopidogrel. **Itraconazole:** omeprazole reduces the exposure to itraconazole given as capsule. **Ketoconazole:** omeprazole reduces bioavailability of ketoconazole which may result in treatment failures.
Pregnancy:	**Consider alternative – 1st trimester** **Considered safe to use – 2nd and 3rd trimester** While omeprazole has the most reported safety experience in human pregnancy studies, lifestyle modifications (including dietary changes), antacids trialled before omeprazole is used.
Breastfeeding:	**Considered safe to use**. Excreted into breast milk, but maternal use is not expected to cause adverse effects in the breastfed infant.
Patient Information:	Swallow whole, do not crush or chew capsule
Cross Reference:	**Heartburn** – page 22

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Paracetamol

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ Ethics Paracetamol Classic 500mg tablets ▪ Medco 500mg tablets ▪ Panadol Mini Caps 500mg tablets ▪ Paracare 500mg tablets ▪ Paracetamol Pharmacare 500mg tablets ▪ Pharmacare 500mg tablets ▪ Pharmacy Health 500mg tablets ▪ Paracare 120mg/5mL oral liquid ▪ Paracare Double Strength 250mg/5mL oral liquid ▪ Gacet 125mg, 250mg, 500mg suppositories Many other brands and products are available for purchase.
Indication:	Analgesic and antipyretic
Contra-indications:	Hypersensitivity to paracetamol or any excipients of the product; hepatocellular failure; liver disease
Cautions	Alcohol dependence; G6PD deficiency; severe renal impairment; underlying liver disease increases the risk of paracetamol-related liver damage; haemolytic anaemia.
Administration and Dosage:	**Adult** Oral or rectal ▪ 500mg – 1000mg every FOUR to SIX hours; maximum of 4g per day.
Adverse Effects: (NB this is not a complete list)	**Very rare:** Malaise; skin reactions including Stevens-Johnson syndrome and toxic epidermal necrolysis; thrombocytopenia; anaphylaxis; bronchospasm; hepatic dysfunction
Interactions: (NB this is not a complete list)	**Warfarin:** anticoagulant effect may be enhanced by prolonged regular use of paracetamol; occasional doses do not appear to have a significant effect. The risk of paracetamol toxicity may be increased in patients receiving other potentially hepatotoxic medicines or medicines which induce liver enzymes such as anticonvulsants.
Pregnancy:	**Safe to use;** Analgesic of choice in pregnancy. Some studies have questioned whether paracetamol use in pregnancy is linked to adverse impacts on neurodevelopment or increased incidence of wheezing and childhood asthma, but as of yet, evidence appears to be inconclusive.

Breastfeeding:	**Safe to use**; minimal amounts excreted into the breast milk; analgesic of choice in breastfeeding. Monitor infant for diarrhoea or gastric upset. Potential for liver toxicity if maternal overdose.
Patient Information:	Do not take more than 4g (8 x 500mg tablets) in one day. Do not take with other medicines that contain paracetamol, including those purchased without a prescription. Seek medical advice immediately if experiencing any serious skin reaction including severe rash, skin peeling, or mouth ulcers.
Cross Reference:	**Analgesia on Discharge after Caesarean Section** – page 11 **CMH Guideline**: Analgesia and post-operative prescribing for women who have a caesarean section via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A341223

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Progestogen-Only Pill

Generic Name	Brand Name	Progestogen (micrograms)	Subsidy
levonorgestrel	Microlut	30	Fully subsidised
norethisterone	Noriday 28	350	Fully subsidised
desogestrel	Cerazette	75	Not subsidised

Trade Name, Formulation, Strength and Funding	See table above for available brands and subsidy information.
Indication:	Contraception
Contra-indications:	Hypersensitivity to active ingredient or excipients; known or suspected pregnancy; undiagnosed vaginal bleeding; severe arterial disease; acute porphyria; liver tumour; history of breast cancer (but can be used after 5 years if no evidence of disease and non-hormonal contraceptive methods are unacceptable.
Cautions	**Refer to WHO medical eligibility criteria for contraceptive use for further information (accessible at** http://www.who.int/reproductivehealth/publications/family_planning/Ex-Summ-MEC-5/en/**)** **Or, to The Faculty of Sexual and Reproductive Healthcare guidelines at:** http://www.fsrh.org Arterial disease; sex-steroid dependent cancer; past ectopic pregnancy; malabsorption syndromes; active trophoblastic disease; systemic lupus erythematosus with positive or unknown antiphospholipid antibodies; functional ovarian cysts; history of jaundice in pregnancy; severe liver disease; recurrent cholestatic jaundice
Administration and Dosage:	**Adult** Oral ▪ One tablet at the same time each day, continuously. Can be started at any time following delivery in both breastfeeding and non-breastfeeding women. If starting after day 21 postpartum, additional contraceptive cover is advised for 2 days.
Adverse Effects: (NB this is not a complete list)	Menstrual irregularities; nausea; vomiting; headache; dizziness; breast discomfort; depression; skin disorders; appetite disturbance; changes in libido. There is a small increase in the risk of having breast cancer diagnosed in women using, or who have recently used a POP; this relative risk may be due to earlier diagnosis. The risk gradually disappears during the 10 years after stopping.

Interactions: (NB this is not a complete list)	**Enzyme-inducing antibiotics (rifampicin, rifabutin) or anti-convulsants (phenytoin, carbamazepine, phenobarbital, primidone, topiramate):** may reduce effectiveness of POP. Use of an alternative contraceptive method unaffected by enzyme-inducers (e.g. intrauterine methods or progestogen-only injectable) is recommended. For short-term treatment (≤ 2 months) in women who do not wish to change methods, they can be advised to continue to use POP but also use additional precautions (e.g. barrier methods) whilst taking the enzyme-inducing drug and for 28 days after stopping treatment. **Lamotrigine:** Desogestrel may increase lamotrigine levels and therefore cause adverse effects. Potential effect on contraceptive efficacy is unknown.
Pregnancy:	**Contraindicated;** Not indicated in pregnancy. There is no known harm to the woman, the fetus or the course of the pregnancy if accidently used during pregnancy.
Breastfeeding:	**Considered safe to use;** Does not adversely affect the composition or supply of milk, or the growth and development of the child.
Comments:	May be a suitable alternative to the COC where oestrogens are contraindicated e.g. VTE, heavy smoker, hypertension, migraine with aura etc.). Menstrual irregularities are more common with POP than with COC but tend to resolve on long-term treatment.
Patient Information:	Some irregular bleeding may occur for a month or two after starting POP. If this continues, the woman should discuss with their healthcare provider. Always take the pill at around the same time each day. Continue to take even during menstrual bleeding. **Missed pill:** ▪ Take as soon as remembered and take the next one at the usual time. If it is more than 3 hours late (12 hours for desogestrel), the patient will not be protected and should use another contraceptive method, such as a condom, for the next 2 days. ▪ Emergency contraception may be required if unprotected intercourse has occurred during this 2 day period. **Diarrhoea and Vomiting** ▪ If vomiting occurs within 2 hours of taking POP, take another pill as soon as possible. ▪ If the replacement pill is not taken within 3 hours (12 hours for desogestrel) of the normal pill-taking time or in cases of persistent vomiting or very severe diarrhoea, additional precautions should be used during illness and for 2 days after recovery.
Cross Reference:	**Contraception** – page 16 **Combined Oral Contraceptive Pill** – page 69 **Levonorgestrel Implant (Jadelle)** – page 98

Levonorgestrel Intrauterine Devices – page 101
Medroxyprogesterone Acetate (Depo-Provera) – page 104
Non-Hormonal Contraceptives - page 117

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Trimethoprim

(always use generic name when prescribing)

Trade Name, Formulation, Strength and Funding	**Fully subsidised:** ▪ TMP 300mg tablets
Indication:	Urinary tract infection
Contra-indications:	Hypersensitivity to trimethoprim; serious haematological disorders
Cautions	Predisposition to folate deficiency; elderly; acute porphyria; renal impairment (dose may need adjusting), blood disorders (on long-term treatment)
Administration and Dosage:	**Adult** Oral ▪ **Acute uncomplicated urinary tract infections:** 300mg daily at night. Treat first positive culture for 3 days. Treat second and subsequent positive cultures for 7 days. ▪ **Urinary-tract infection prophylaxis:** 150mg nocte (half a 300mg tablet). Use until 6 weeks postnatal for women who have had three or more positive urine cultures in this pregnancy.
Adverse Effects: (NB this is not a complete list)	GI disturbances; pruritus; rashes; headache; dizziness; hyperkalaemia; hyponatraemia; depression; erythema multiforme; toxic epidermal necrolysis; photosensitivity; angioedema; anaphylaxis; blood dyscrasias
Interactions: (NB this is not a complete list)	**ACE-inhibitors such as quinapril:** theoretical risk of hyperkalaemia; monitor potassium levels or avoid concurrent use. **Amiloride:** theoretical risk of hyperkalaemia and/or hyponatraemia; monitor electrolytes, in particular potassium and sodium. **Ciclosporin, tacrolimus:** deterioration of renal function possible **Digoxin:** levels may be increased by trimethoprim **Methotrexate:** increased risk of haematological toxicity; monitor full blood count **Phenytoin:** levels may be increased by trimethoprim **Spironolactone:** theoretical risk of hyperkalaemia and/or hyponatraemia; monitor electrolytes, in particular potassium and sodium. **Warfarin:** possible increased anticoagulant effect
Pregnancy:	**Consider alternative;** Do not use in the first trimester due to potential concerns of teratogenicity.

Breastfeeding:	**Considered safe to use;** low amounts in the breastmilk and not expected to cause adverse effects in breastfed infants. It may interfere with folate metabolism therefore long-term use should be avoided in breastfeeding mothers or the infant supplemented with folic acid.
Patient Information:	Complete the course. Take with food to minimise the risk of gastrointestinal disturbances. If being used long-term, the patient should be aware of how to recognise the signs of blood disorders and advised to seek immediate medical attention if they occur. Symptoms include fever, sore throat, rash, mouth ulcers, purpura, bruising or bleeding.
Cross Reference:	**Urinary Tract Infection** – page 32
Related Guidelines:	**CMH Guideline**: Urinary Tract Infection in Pregnancy in **Appendix 3** (page 134) or via http://cmdhbdocuments/docsdir/opendocument.aspx?id=A2815 for the latest version.

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Abbreviations

ACE	Angiotensin-converting enzyme
ALT	Alanine aminotransferase
ANC	Antenatal care
ASHS	Auckland Sexual Health Service
AST	Aspartate aminotransferase
B&A	Birthing and Assessment
BMI	Body Mass Index
CMDHB	Counties Manukau District Health Board
CMH	Counties Manukau Health
CNS	Central Nervous System
COC	Combined oral contraceptive
CSC	Community Services Card
CTG	Cardiotocography
DAC	Day Assessment Clinic
DHB	District Health Board
EBL	Estimated blood loss
ED	Every day (in reference to COC pills)
ESBL	Extended spectrum beta-lactamase
FHR	Fetal heart rate
FPA	Family Planning Association
G6PD	Glucose-6-phosphate dehydrogenase deficiency
GBS	Group B Streptococcus
GI	Gastrointestinal
GP	General Practitioner
GU	Genitourinary
Hb	Haemoglobin
HUHC	High User Health Card
ID	Infectious Diseases
IM	Intramuscular
INR	International Normalised Ratio
IUCD	Intrauterine contraceptive device
IV	Intravenous
LAM	Lactational amenorrhoea method
LARC	Long-acting reversible contraception
LFTs	Liver Function Tests
LMC	Lead Maternity Carer
MCHC	Mean Cell Haemoglobin Concentration
MCV	Mean Cell Volume
MIMS	Monthly Index of Medical Specialities (reference book)
MoH	Ministry of Health
MSU	Mid-stream urine
NRT	Nicotine Replacement Therapy
NS	Not subsidised
NSAID	Non-steroidal anti-inflammatory drug
NZCOM	New Zealand College of Midwives
NZF	New Zealand Formulary
NZSHS	New Zealand Sexual Health Service
PHO	Primary Healthcare Organisation
PID	Pelvic Inflammatory Disease
POAC	Primary Options for Acute Care
POP	Progestogen-only pill
SR	Slow release

STI	Sexually Transmitted Infections
USS	Ultrasound scan
UTI	Urinary Tract Infection
VTE	Venous thromboembolism
WBC	White blood cell
WHO	World Health Organisation

Appendix 1 – Ferric Carboxymaltose (Ferinject) Eligibility Criteria

This information is provided for reference but please refer to either Auckland HealthPathways (https://aucklandregion.communityhealthpathways.org/288018.htm)or the POAC information page (https://www.poac.co.nz/page/ferinject/) for the most up to date information and eligibility criteria. The referral is to be completed online at https://www.poac.co.nz/page/refer_iv_iron.

Pharmac (Special Authority) Criteria (for funding of the cost of ferric carboxymaltose)
Serum ferritin < 20 microgram/L
Patient has been diagnosed with iron-deficiency anaemia with a serum ferritin level of less than or equal to 20 mcg/L **AND** • Patient has been compliant with oral iron treatment and treatment has proven ineffective **OR** • Treatment with oral iron has resulted in dose-limiting tolerance **OR** • Rapid correction of anaemia is required
Iron deficiency anaemia
Patient has been diagnosed with iron deficiency anaemia **AND** • Patient has been compliant with oral iron treatment and treatment has proven ineffective **OR** • Treatment with oral iron has resulted in dose-limiting tolerance **OR** • Patient has symptomatic heart failure, chronic kidney disease stage 3 or more or active inflammatory bowel disease and a trial of oral iron is unlikely to be effective **OR** • Rapid correction of anaemia is required *NB for this indication, applications accepted only from an internal medicine physician, obstetrician, gynaecologist, anaesthetist or any other medical practitioner acting on the recommendation of one of these practitioners*

POAC Criteria (for funding of the administration cost of ferric carboxymaltose)
Antenatal – 2nd and 3rd trimesters only (Contra-indicated in the 1st trimester)
Patient has been diagnosed with iron deficiency anaemia, ferritin is ≤20microgram/L and Hb <110g/L **AND** • Failure of trial of oral iron therapy due to significant side effects OR • Persistent anaemia after 4 weeks despite compliance with oral iron therapy OR • Rapid correction of anaemia is required Seek antenatal clinic advice if • Hb <70 and >34 weeks gestation

• Concern about symptoms
Postnatal
Patient has been diagnosed with iron deficiency anaemia, ferritin is ≤20microgram/L **AND** rapid correction of anaemia is required due to one of the following: • Hb <90g/L **OR** • Hb <100g/L with symptoms of anaemia
Specialist recommendation option (ferritin level not specified)
• For POAC funding, written recommendation from the specialist is required. This can be in the form of a recommendation in a clinic or other letter. The specialist's name and the grounds for the recommendation are required for POAC claiming. • Alternatively, request advice about the use of IV ferric carboxymaltose using the specialist advice option on e-referrals

Appendix 2 – CMH Poster: Penicillin Allergy

Penicillin Allergy

All drug allergies must be specified in the allergy section on medication chart **and** reactions noted. Contact ward pharmacist or ID team if any concerns/queries.

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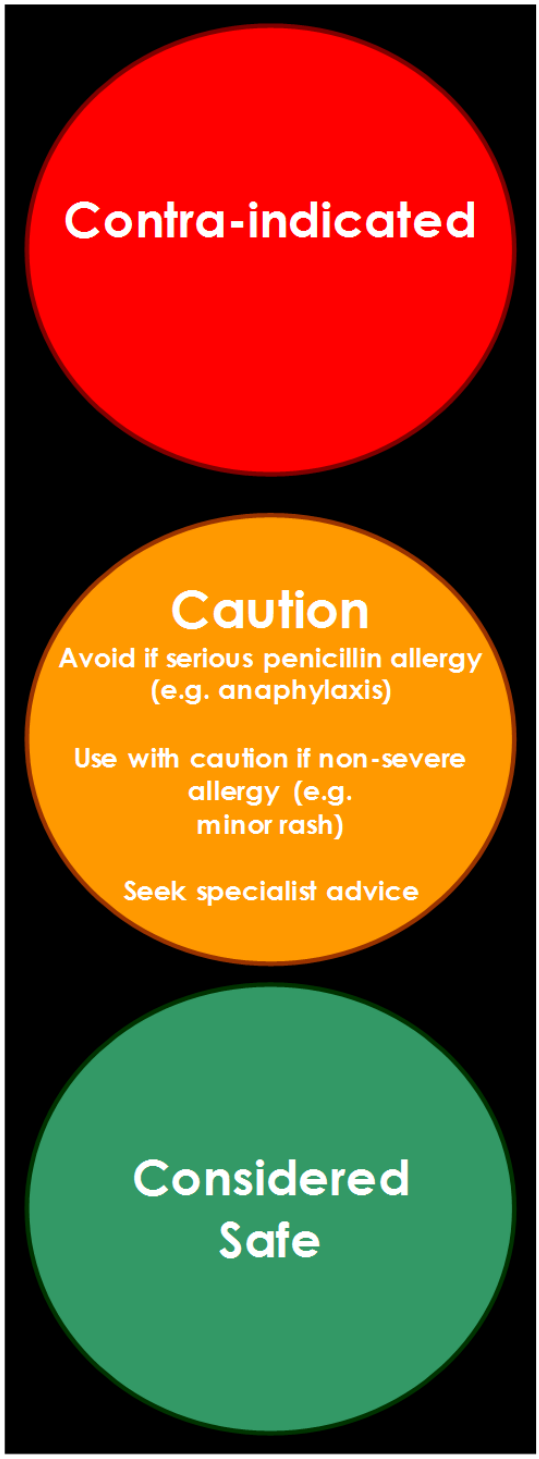

Antibiotics to be avoided in penicillin allergy

Amoxycillin
Augmentin / Synermox / Curam / Amoxiclav *(Amoxycillin/Clavulanic acid; Co-amoxyclav)*
Benzathine penicillin
Benzylpenicillin *(Penicillin G)*
Penicillamine
Phenoxymethylpenicillin *(Penicillin V)*
Dicloxacillin
Flucloxacillin
Piperacillin/Tazobactam *(Tazocin)*
Ticarcillin/Clavulanic acid *(Timentin)*

Antibiotics to be used with caution or might need to be avoided in penicillin allergy

Cefaclor
Cefalexin *(Cephalexin)*
Cefepime
Cefotaxime
Cefoxitin
Ceftazidime
Ceftriaxone
Cefuroxime
Cephazolin *(Cefazolin)*
Ceftaroline
Ertapenem
Imipenem/Cilastatin
Meropenem

Antibiotics considered safe in penicillin allergy (not complete list)

Aztreonam
Ciprofloxacin
Clindamycin
Co-trimoxazole
Trimethoprim
Doxycycline
Erythromycin
Gentamicin
Metronidazole
Vancomycin
Roxithromycin

In **serious penicillin allergy** (e.g. anaphylaxis, bronchospasm, oedema of face, pharynx and larynx, hypotension) **ALL** penicillins, cephalosporins and other beta-lactams should be avoided. In cases of milder reactions such as rash to penicillins, cephalosporins can be used **with caution.**

Medsafe datasheets; 2. NZF 2016; 3. eTG Antibiotics, 2015

Date updated: January 2017

Appendix 3 – CMH Guideline: Urinary Tract Infection in Pregnancy

Guideline: Urinary Tract Infection in Pregnancy

Background

- The ureters dilate in pregnancy due to the effect of progesterone and the pressure of the pregnant uterus.
- This is associated with increase chance of ascending urinary tract infection (UTI) and asymptomatic bacteriuria (colonisation of the urine without symptoms)
- These effects last until at least 6 weeks after birth
- A positive culture is a urine that grows **a positive culture of a single organism at a count at least 10e8/L**
- An equivocal culture results is urine that grows a **"mixed culture" or a single organism count less than 10e8/L**, this is likely to be due to contamination, especially if epithelial cells are present. Do another specimen.

Overview

Asymptomatic Bacteriuria

- About 5% of pregnant women have asymptomatic bacteriuria
- Pregnant women with asymptomatic bacteriuria are at increased risk of pyelonephritis (ascending UTI involving the kidneys)
- **Identification and management of women with asymptomatic bacteriuria in early pregnancy reduces the risk of pyelonephritis later in pregnancy**

Pyelonephritis

- Pyelonephritis in pregnancy may cause
  - Severe maternal illness with septicaemia
  - Preterm labour and delivery
- Maternal pyrexia is a risk factor for fetal brain injury and cerebral palsy

Group B streptococcus

- A positive urine culture (any colony count) for Group B Streptococcus (GBS) **at any gestation** is an indication for GBS prophylactic antibiotics in labour.
- Treatment of GBS bacteriuria at the time of the positive urine culture is only required if there is a significant colony count (**10e8/L)**. Antibiotics given to treat GBS UTI do not eliminate GBS colonisation in the GI/GU tract and therefore intrapartum GBS prophylaxis is still required.

Choice of antimicrobials

- When selecting treatment for UTI, consider:
  - Gestation (some drugs are best avoided early or late in pregnancy)
  - Results of recent urine cultures

  - Results of previous urine cultures (if treating empirically)
  - Typical sensitivities of urinary organisms in South Auckland
  - Drug allergies

- Nitrofurantoin is not suitable for pyelonephritis – it is concentrated in the urine, not the renal soft tissues
- Avoid Amoxycillin with Clavulanic Acid if there is a risk of preterm delivery (increased neonatal necrotising enterocolitis in the Oracle Trial)
- Widespread use of Cephalosporins may be encouraging emergence of multi-resistant organisms
- Do not treat suspected UTI with Amoxycillin empirically before susceptibilities are available – 50% of community acquired E. coli are resistant
- Norfloxacin should be avoided during pregnancy and breastfeeding.

Purpose

This guideline is to promote consistent evidenced-based care for pregnant women with asymptomatic bacteriuria and symptomatic UTI.

Scope of Use

This guideline is applicable to all medical, midwifery and nursing practitioners responsible for the care of pregnant women.

Roles and Responsibilities

Lead Maternity Carers (LMC) are responsible for ensuring all women have a booking mid-stream urine (MSU) and results are actioned appropriately.

Medical staff are responsible for inpatient care and ensuring a clear outpatient plan is made and communicated to the LMC.

Index

Guideline

1. Asymptomatic Bacteriuria

- Send urine for culture for all pregnant women at booking, regardless of the results of “dip-test”. Obtain a “midstream urine” collection without contamination.
- Educate women on urinary hygiene and fluid intake

- 1.5-2L water daily
- wiping front-to-back
- using clean fingers and hands (i.e. washed with soap) for wiping perineal/vulval area and intimate activities

Positive culture

- Treat a positive culture with an antimicrobial (according to sensitivities) and send urine for culture every 4 weeks for the rest of the pregnancy

Equivocal culture result

- If there is a high WBC count but insignificant growth exclude STIs that may be causing urethritis e.g. Chlamydia, Trichomonas, Gonorrhoea. Tuberculosis is a rare cause to be considered depending on the clinical context.
- Treat any subsequent positive culture results for bacteriuria
- Educate woman on urinary hygiene and fluid intake
- The drugs of choice for treatment of asymptomatic bacteriuria are:

1st choice – Trimethoprim 300 mg nocte **(not 1st trimester)**
2nd choice – Nitrofurantoin Modified release 100mg 2x daily **(not 3rd trimester)**
3rd choice – Amoxycillin 500 mg 3x daily
4th choice – Amoxycillin-clavulanic acid ("Augmentin") 625 mg 3x daily
5th choice – Cefaclor 500 mg 3x daily

Infection due to a multi-resistant organism

- If none of the above 5 agents are active against the bacteria isolated, there may be few oral options available for therapy.
  - We recommend discussing other potential agents with the ID/Micro service.

How long to treat

- Treat first positive culture for 3 days
- Treat second and subsequent positive cultures for 7 days

Antibiotic prophylaxis

- After three positive cultures in one pregnancy offer prophylactic antimicrobials until delivery (see section 5)
- There is no need for further investigations of recurrent episodes of asymptomatic bacteriuria with renal ultrasound scan. It is unlikely to show any abnormalities other than physiological dilated ureters and hydronephrosis in pregnancy.

2. Uncomplicated Cystitis

Symptoms of uncomplicated UTI include:

- Dysuria
- Frequency and urgency
- Incontinence
- Non-specific lower back pain

Assessment of uncomplicated UTI

- Send urine for microscopy and culture if there are any of the above symptoms
- If there is a strong clinical suspicion of UTI treat with antimicrobials immediately

Treatment of uncomplicated UTI

- Treat with oral antimicrobials
- Encourage oral fluids
- Check culture results and sensitivities after 48 hours – may need to change treatment
- Repeat urine culture at the next antenatal visit after completing treatment and then every 4 weeks for the remainder of the pregnancy
- The drugs of choice for empirical treatment of cystitis are:

1st choice – Nitrofurantoin Modified release 100 mg 2x daily **(not 3rd trimester)**
2nd choice – Trimethoprim 300 mg nocte **(not 1st trimester)**
3rd choice – Amoxycillin-clavulanic acid ("Augmentin") 625 mg 3x daily
4th choice – Cefaclor 500 mg 3x daily

How long to treat

- Treat first positive culture for 3 days
- Treat second and subsequent positive culture for 7 days

Prophylactic antibiotics

- After three positive cultures in one pregnancy offer prophylactic antimicrobials for the remainder of the pregnancy and investigate further with a renal tract ultrasound scan. Referral to urology team should be made if there are any renal calculi or other anomalies found that might predispose to infection
- If USS has not been done in pregnancy request renal USS at least 6 weeks after delivery

3. Pyelonephritis

Link to Maternal Pyrexia in Labour Guideline: **Maternal Pyrexia in Labour**

Symptoms of pyelonephritis include:

- Symptoms of systemic infection – malaise, febrile symptoms, nausea/vomiting, muscle and joint pains
- Dysuria and frequency of urination
- Loin pain
- Uterine contractions

Clinical signs of pyelonephritis include:

- Maternal temperature more than 38°C

- Maternal heart rate more than 100
- Loin tenderness

Where to treat

- Uterine activity or unstable – Birthing & Assessment
  - Consider discussion with Critical Care Services if unstable
- No uterine activity - admit to the Maternity

Assessment of the maternal condition

Link to Sepsis Management in Pregnancy and Postpartum Guideline:

Sepsis Management in Pregnancy and Postpartum

The 'Sepsis bundle' of care for those presenting with sepsis is reported to have reduced mortality by 50% if implemented within the first 1hr of presentation.

- Heart rate, oxygen saturation, respiratory rate, blood pressure and temperature at least 4 hourly, more frequently if clinically indicated in accordance with the MEWS chart
- Blood tests – repeated after 48 hours if still systemically unwell:
  - Full blood count
  - Electrolytes, urea and creatinine, CRP, (consider LFT and glucose and coagulations if unwell)
  - Venous lactate
  - Blood cultures – 2 sets (before antibiotics)
  - Midstream urine for culture
- Consider septic screen for alternative diagnoses if history is unclear.

Action as per the MEWS chart.

Management

- Administer High flow oxygen to maintain oxygen Sats > 94% if required

Fluid management

- Encourage oral fluids if tolerated
- IV fluids resuscitation. Administer 30ml/kg crystalloid within 3hours for hypotension or Lactate > 4. Notify Anaesthetics if remains hypotensive.
- Consider IDC and hourly urine output if unwell
- Fluid balance chart

Monitoring the fetal condition

- Continuous electronic fetal monitoring (CTG) if ≥ 26/40 until Maternal temperature is within normal range.
- A baseline fetal heart rate (FHR) of 160-180bpm may be in response to the maternal temperature
- Consider urgent delivery by caesarean section if the fetal heart rate is persistently above 180 or tachycardic with reduced variability or decelerations unresponsive to stat iv fluids

Antimicrobial treatment of pyelonephritis

- Treat with intravenous antimicrobial until the temperature has been less than 38^{o}C for 24 hours and systemic symptoms have resolved
- The drugs of choice for intravenous treatment of pyelonephritis are:

1st choice – Cefuroxime 1.5 g – 8 hourly
2nd choice – Gentamicin **(alone)** 5mg/kg IDEAL BODY WEIGHT with normal renal function once daily***

- If gentamicin once daily dosing is used: (refer to guideline: Aminoglycoside Adult Dosing & Therapeutic Monitoring)

Gentamicin

Whilst *in utero* use of aminoglycosides has been associated with ototoxicity and nephrotoxicity in the infant, there are limited cases in the literature of this occurring with gentamicin specifically. The literature suggests "if the parenteral therapy has been extensive, renal function should be monitored in the neonate and an auditory test should be performed". [1] It is safest to keep parenteral use to the shortest duration that is therapeutically appropriate and to switch to oral antibiotics as soon as clinically suitable. Hearing screening is offered to all babies in NZ after birth as standard. Reports of nephrotoxicity as a result of exposure do appear to be rare and limited to first trimester exposure and so it would seem reasonable that this might only be required, when therapy extends beyond the standard short course, or for example if there have been concerns with gentamicin toxicity in the mother e.g. high levels.

  - No more than two doses should be given before review of ongoing need for treatment
  - Maternal renal function should be monitored
  - Refer to Neonatal team for consideration of neonatal renal function and an auditory test
  - Avoid 1st trimester

- If patient remains unresponsive after 24 hours of antimicrobial treatment, discuss further treatment with Clinical Microbiology
- For patients with ESBL positive culture, please contact ID/micro regarding appropriate antimicrobial treatment
- Change from intravenous to oral antibiotics once systemically well and with temperature less than 38°C for 24 hours.

  Refer to SWITCH procedure "Switching from Intravenous to Oral Antibiotics - Adults".

  SWITCH Procedure

  By this time culture results are usually available
  - Augmentin, Amoxycillin, Trimethoprim, Cefaclor are reasonable choices
  - Oral Cefuroxime is not funded by Pharmac
  - Nitrofurantoin is not appropriate for renal infection

How long to treat

- Complete a course of antimicrobial for 7 days in uncomplicated pyelonephritis when organism is known and reliable treatment is available

- When no organism is isolated, there is a delay in response to treatment or other complications, a 10 day course is recommended
- Send urine for culture 1 week after completing the course of antibiotics
- Send urine for culture every 4 weeks for the remainder of the pregnancy

Prophylactic antimicrobials

- After a single episode of pyelonephritis, offer prophylactic antimicrobials for the remainder of the pregnancy

Imaging

- If symptoms have not resolved after 48 hours request renal ultrasound
- Refer to urology team if renal stones or renal anomaly that might predispose to infection is present
- If USS has not been done in pregnancy request renal USS at least 6 weeks after delivery

4. <u>Prophylactic Antimicrobial Treatment</u>

- Prophylactic antimicrobial treatment for the remainder of pregnancy and for 6 weeks postnatal is recommended in the following situations:
  - 3 positive urine cultures in pregnancy whether symptomatic or not.
  - single episode of pyelonephritis.
- The drugs of choice are:

1st choice – Trimethoprim 150 mg nocte (half a 300 mg tablet) – except if earlier Trimethoprim resistant UTI **(not 1st trimester)**
2nd choice – Nitrofurantoin 100 mg nocte **(not 3rd trimester)**
3rd choice – Cefaclor 250 mg nocte

References

1. Schaefer C, Peters P, Miller RK. Drugs During Pregnancy and Lactation: Treatment options and risk assessment. 3rd edition. London: Elsevier; 2015

2. Brown MA, Mangos GJ, Peek M, Plaat F (2010) p194-196 Renal disease in pregnancy in de Swiet's Medical Disorders in Obstetric Practice 5th Edition, Powrie RO, Green MF, Camann W.

3. Clinical Guidelines for use in adult patients – Empiric Treatment by organ system (available on Paanui).

Definitions/Description

Terms and abbreviations used in this document are described below:

Term/Abbreviation	Description
Asymptomatic bacteriuria	Bacterial colonisation of the urinary tract without symptoms
Cerebral palsy	A disorder of movement due to brain injury during pregnancy or birth
Cystitis	Symptomatic bacterial infection of the bladder
MEWS	Maternity Early Warning Score

Necrotising enterocolitis	A bowel disorder of preterm infants involving necrosis and perforation
Prophylactic antibiotic	When treatment is given continuously to prevent infection
Pyelonephritis	Symptomatic bacterial infection of the kidneys

Associated Documents

Other documents relevant to this guideline are listed below:

NZ Legislation & Standards	Section 88 of the New Zealand Public Health and Disability Act 2000
CM Health Documents	Aminoglycoside Adult Dosing and Therapeutic Monitoring Clinical Guidelines for use in adult patients – Empiric Treatment by organ system
Other related documents	None

Laxative guidance for opioid-induced constipation prevention (adult)

Step-wise approach to prescribing and administering laxatives

- ✓ Advise patients to go to the toilet regularly, preferably at the same time each day.
- ✓ Ensure patients are comfortable and have privacy to facilitate unhurried, complete bowel emptying.
- ✓ Ensure that patients have adequate fluid intake and eat fibre-rich foods, including Kiwi Crush or prunes.
- ✓ Increase exercise within patient capabilities.

- ❖ Avoid oral laxatives in patients with bowel obstruction.
- ❖ Avoid lactulose if fluid intake is poor.

Step 1 – Opioid prescribed

Start stimulant laxative with stool softener

- Docusate Sodium 50mg, Senna 8mg (Laxsol) 2 tabs BD REGULAR
- Kiwi Crush / prunes DAILY REGULAR

Step 2 – BNO for 1 to 2 days

Continue

- Docusate Sodium 50mg, Senna 8mg (Laxsol) 2 tabs BD REGULAR
- Kiwi Crush / prunes DAILY REGULAR

Add osmotic laxative

- Lactulose 10 to 20mL PO BD

Step 3 – BNO for 3 to 4 days

Continue

- Docusate Sodium 50mg, Senna 8mg (Laxsol) 2 tabs BD regular
- Kiwi Crush / prunes daily
- Lactulose 10 to 20mL PO BD

Add additional osmotic laxative

- Lax-Sachet 1 sachet PO BD

Use stat

- Microlax 1 enema PR

Step 4 – BNO for ≥ 5 days

Continue

- Docusate Sodium 50mg, Senna 8mg (Laxsol) 2 tabs BD regular
- Kiwi Crush / prunes daily
- Lactulose 10 to 20mL PO BD
- Lax-Sachet 1 sachet PO BD

Add

- Fleet enema 1 enema PR DAILY

CM Health Opioid Collaborative Group Version: 14 July 2017

This is for guidance only and does not replace clinical judgement. Not to be used for spinal cord, palliative, or bowel patients.

COUNTIES MANUKAU HEALTH

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