Royal Hospital for Women (RHW)
BUSINESS RULE
COVER SHEET

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FORMER REFERENCE(S)	Miscarriage – medical management - Rescind Miscarriage – surgical management – Rescind
EXECUTIVE SPONSOR	Medical Co-Director, Women's Health and Gynaecological Services
AUTHOR	Director of Benign Gynaecology
SUMMARY	To offer women with early pregnancy loss evidence-based options for management including expectant, medical and surgical management of miscarriage
Key Words	Early pregnancy loss, miscarriage, expectant, medical, surgical

Contents

This Clinical Business Rule (CBR) is developed to guide safe clinical practice at the Royal Hospital for Women (RHW). Individual patient circumstances may mean that practice diverges from this Clinical Business Rule. Using this document outside RHW or its reproduction in whole or part, is subject to acknowledgement that it is the property of RHW and is valid and applicable for use at the time of publication. RHW is not responsible for consequences that may develop from the use of this document outside RHW.

Within this document we will use the term woman, this is not to exclude those who give birth and do not identify as female. It is crucial to use the preferred language and terminology as described and guided by each individual person when providing care.

1 BACKGROUND

Women with early pregnancy loss may be seen in the Early Pregnancy Assessment Service (EPAS) or present via emergency department. This clinical business rule provides evidence-based options for management including expectant, medical and surgical management of miscarriage.

It applies to women with confirmed:

- Incomplete miscarriage: Symptoms of bleeding and pain with an intrauterine sac or retained products of conception (POC)
- Missed miscarriage: Absence of bleeding with ultrasound diagnosis of an anembryonic pregnancy or early fetal demise

2 RESPONSIBILITIES

2.1 Medical, Nursing and Allied Health- Social Work staff

3 PROCEDURE

3.1 Clinical Practice

General

- Women presenting to emergency department or EPAS in early pregnancy with bleeding or pain need assessment to confirm the location and viability of the pregnancy
  - Take history:
    - Last Menstrual Period (LMP), reliability of dating/regularity of cycles,
    - In-vitro Fertilization(IVF) pregnancy,
    - recent or current contraceptive use,
    - obstetric history including previous miscarriage and ectopic pregnancy,
    - other risk factors for ectopic pregnancy including smoking, endometriosis, previous history of Sexually Transmitted Infection(STI)/Pelvic Inflammatory Disease(PID)
    - Any ultrasound scans this pregnancy
    - General medical/surgical history, medication use, allergies etc

- Perform examination:
  - Vitals and assess haemodynamic stability
  - Abdominal examination – any peritonism
  - Bimanual examination if pain and concern about ectopic pregnancy – any palpable mass or tenderness in adnexae
  - Very heavy bleeding or significant pain warrant speculum assessment to remove POC from cervix if possible and may require acute surgical management
  - Signs of infection (fever, purulent discharge and uterine tenderness) may also require more urgent surgical management under intravenous antibiotic cover
  - Women with suspected molar pregnancy should be managed with surgical management for diagnosis and then follow up as appropriate (See CBR – Gestational trophoblastic disease)
- Arrange blood tests:
  - Quantitative βHCG
  - Progesterone level
  - FBC
  - Group and hold (or cross match if haemodynamic instability)
- Arrange ultrasound if:
  - βHCG ≥1500
  - Serial βHCG level is <1500 but plateauing
  - High suspicion of ectopic pregnancy
  - See Appendix 1: Flowchart for bleeding and pain in early pregnancy
- Serial βHCG tracking
  - Performed at intervals of 48 hours
  - Ideally within the same laboratory to maintain consistency
  - If βHCG level is dropping >50% a failing pregnancy is highly likely
  - A rising βHCG level of >63% is indicative of a viable pregnancy but confirmation of location and viability still required
- Offer support services to all women who are experience miscarriage through Fertility Counsellor Services, Social Work Department or Pink Elephants as appropriate.
- Discuss surgical, medical and expectant management of miscarriage with the patient using the information contained in the educational notes (see below)
- Discuss pros and cons and patient preference for a particular treatment pathway respected once she has received information on all options
- Contact GP directly or via letter to inform them of the management decisions

Anti-D

- All miscarriages are a potential sensitising event, irrespective of the management method.
  Administer Rh (D) Immunoglobulin (Anti-D) as soon as practical and *within 72 hours* of the sensitising event to all Rh D negative women with no preformed anti-D antibodies to prevent Rh D alloimmunisation.[2,3,4]
  Note: if non-invasive prenatal testing (NIPT) for fetal RhD has predicted the woman is not carrying a Rh D positive fetus then Anti-D is not required.[2]
  Dosing:
- 250 IU Rh (D) Immunoglobulin for singleton pregnancy less than 12 weeks.
- 625 IU Rh (D) Immunoglobulin for multiple pregnancies or if greater or equal to 12 weeks gestation

If the miscarriage has occurred after the first trimester, a Kleihauer test should be taken prior to the administration of Rh (D) Immunoglobulin to determine the extent of possible Feto-Maternal Haemorrhage (FMH). Additional doses of Rh (D) Immunoglobulin should be administered as indicated from the results of testing.[3]

Expectant Management

- Suitable for women who prefer to allow a natural process for miscarriage to occur and to avoid surgical and medical management options if possible
- Exclude women with acute symptoms as above, infection, higher risk of bleeding (e.g. on anticoagulation, hereditary bleeding disorder) or anaemia (Hb <100g/L)
- Outpatient management
- See Appendix 2 – Expectant management flowchart
- Women should be counselled about the following:
  - Uncertain time frame, but completion of miscarriage high by 2 weeks (84% for incomplete miscarriage, 59% for missed miscarriage, 52% for anembryonic pregnancy)[1]
  - Pain and bleeding will occur at home, with passage of tissue/sac/fetus (depending on gestation)
  - Support at home required and capacity to access medical care if needed
  - Advise the patient to attend emergency department if her bleeding is so heavy that she soaks through two large pads in an hour, for two hours in a row or has severe pain not managed by pain relief
  - Advise the woman that there is a small risk of infection and that she should contact her GP or EPAS for treatment if her loss becomes offensive smelling or if she has a fever
  - Possibility of requiring surgical management for acute symptoms such as severe pain, heavy bleeding or if unsuccessful expectant management

- Medication recommended/provision of prescription if required (check for contraindications and allergies):
  - Mefenamic acid 500mg 8 hourly for pain
  - Paracetamol 1000mg 4-6 hourly for pain
  - Consider metoclopramide prescription for nausea if present
  - Consider prescription for paracetamol + codeine OR tramadol in case of strong pain
- Provision of medical certificate if needed.
- Follow up:
  - 1 week and 2 weeks – phone call from EPAS nurse/midwife/doctor see flowchart, face to face review if needed

Medical Management

- Suitable for women who prefer an active management process for miscarriage and are wanting to avoid surgical management options if possible
- Exclude women with acute symptoms as above, infection or higher risk of bleeding (e.g. On anticoagulation, hereditary bleeding disorder),

contraindication to Misoprostol and/or Mifepristone (see education notes below)

- Outpatient or inpatient management (outpatient management recommended for women <13 weeks gestation, offer inpatient management for women who have a strong preference or lack of support at home)
  - Women with an embryo >13 weeks size should be admitted for inpatient management. Admit to Macquarie Ward less <15+6 weeks, admit to birthing unit >16 weeks (embryo size).

- See Appendix 2 – Medical management flowchart
- Women should be counselled about the following:
  - Uncertain time frame, but completion of miscarriage high within 2 days (73%) and likely resolution of bleeding by 2 weeks (success rates 70-90%)[5,6]
  - Pain and bleeding will occur at home, with passage of tissue/sac/fetus (depending on gestation)
  - Side-effects are likely to include nausea, vomiting, diarrhoea and mild fever
  - Support at home required and capacity to access medical care if needed
  - Advise the patient to attend emergency department if her bleeding is so heavy that she soaks through two large pads in an hour, for two hours in a row or has severe pain not managed by pain relief
  - Advise the woman that there is a small risk of infection and that she should contact her GP or EPAS for treatment if her loss becomes offensive smelling or if she has a fever that persists beyond the 24 hours following misoprostol administration
  - Possibility of requiring surgical management for acute symptoms such as severe pain, heavy bleeding or if unsuccessful medical management (5-10%)[6]
  - Give woman information leaflet for the medical management of miscarriage where she indicates a preference for medical management.

For Outpatient Management:

Pre-packs of Mifepristone and misoprostol from pharmacy is available in locked cupboard in EPAS as Imprest

Medical Officers are required to complete the following:

- Check for patient allergies and contraindications and document in patient records.
- Prescribe appropriate outpatient regimen and document supply in patient's notes.
- Complete patient details on label of pre-pack including patient name and Medical Record Number (MRN) prior supplying to patient.

Incomplete Miscarriage (Misoprostol Only Protocol)
Misoprostol 800microg (vaginal, buccal OR sublingual) as a single dose **Patient may self-administer at home OR in EPAS prior to leaving hospital**

Missed Miscarriage or Anembryonic Pregnancy
Mifepristone 200mg (Oral) as a single dose followed 48 hours later by Misoprostol 800microg (vaginal, buccal or sublingual) if the sac has not already passed

Prescribe analgesia and antiemetics as appropriate for patient to obtain supply from the community:

- Ibuprofen 400mg 6 hourly for pain
- Paracetamol 1000mg 4-6hourly for fever or pain
- Metoclopramide 10mg 8 hourly for nausea
- Consider prescription for paracetamol + codeine or tramadol in case of strong pain.

For Inpatient Management:

- Decision on Mifepristone and Misoprostol or Misoprostol only regimen in consultation with senior clinician
- Mifepristone and Misoprostol inpatient regimen
  - Prescribe Mifepristone 200mg orally as an outpatient if required. Complete patient details on label of pre-pack.
  - Instruct the woman to take Mifepristone orally 24-48 hours before planned admission for Misoprostol
  - Give written information as to when and where to return to hospital
  - Arrange admission 24-48 hours after Mifepristone
- On admission:
  - ensure adequate analgesia
  - arrange follow up with care givers (social work, genetics, maternal fetal medicine, perinatal loss clinic, general practitioner (GP)) as appropriate for gestation and situation
  - administer Misoprostol as per table 1 (can also be given via buccal/sublingual administration)

Table 1 – Medication regimes for inpatient medical management of miscarriage/fetal demise (or termination of pregnancy)

	<13 weeks gestation	13-28 weeks gestation	29-34 weeks gestation	>34 weeks gestation
Misoprostol dose (after Mifepristone) (this is the preferred method)	Initial dose: 800mcg vaginally/buccal/sublingual Subsequent doses: 400mcg vaginally/ buccal/sublingual every three hours to a maximum of TWO further doses over 24 hours	400mcg vaginally/ buccal/sublingual every three hours to a maximum of FIVE doses over 24 hours	100mcg vaginally/ buccal/sublingual every four hours to a maximum of FIVE doses over 24 hours	100mcg vaginally/ buccal/sublingual every four hours to a maximum of FIVE doses over 24 hours OR Oxytocin infusion and consider artificial rupture of membranes after labour established
Misoprostol-only regimen (if Mifepristone unavailable or contraindicated)	800mcg vaginally/ buccal/sublingual every 3 hours to a maximum of THREE doses	400mcg vaginally/ buccal/sublingual every three hours to a maximum of FIVE doses over 24 hours.	100mcg vaginally/ buccal/sublingual every four hours to a maximum of FIVE doses over 24 hours	100mcg vaginally/ buccal/sublingual every four hours to a maximum of FIVE doses over 24 hours OR Oxytocin infusion and consider artificial rupture of membranes after labour established

- Follow up:
  - 2-3 days support phone call from EPAS nurse/midwife
  - 2 weeks phone call from EPAS nurse/midwife/doctor (see flowchart), face to face review if needed
  - Individualise care in the case of incomplete miscarriage following medical management. Offer expectant management with follow up, or surgical management. There is no evidence to support additional doses of misoprostol however this may be considered on a case by case basis.

Surgical Management

- Suitable for women who wish to have active miscarriage management with a more certain timeframe, who are happy to accept the risks of surgical intervention
- Recommended if:
  - Haemodynamically unstable
  - Excessive pain or bleeding

  - Infection (with antibiotic cover)
  - Suspicion of molar pregnancy
- Inpatient management (day surgery)
- Give the woman information leaflet for Dilatation and Curettage/Evacuation of Retained Products of Conception when she indicates a preference for surgical management.

- Obtain written informed consent for the procedure and document risks discussed (infection, bleeding, perforation leading to laparoscopy and intrauterine adhesions/Asherman syndrome)
- Discuss with admitting Consultant and coordinate with the Bed Manager and Operating Theatres regarding the timing of patient admission.
- Notify Operating Theatres and book patient for Evacuation of Retained Products of Conception (ERPC) procedure (state if ultrasound guidance also required) as per emergency/unplanned procedure. Indicate the Clinical Priority appropriate for timeframe of procedure pending woman's clinical urgency.
- Admit the woman after discussion with the Bed Manager as follows:
  - if less than 15+6 weeks gestation – admit to Day Surgery Unit (DSU) (with or without misoprostol)
  - if greater than 16 weeks gestation - admit to Macquarie Ward
  - if patient clinically unstable or actively bleeding admit direct to Macquarie Ward regardless of gestation or arrange direct transfer to operating theatres pending patient condition.
- Advise the woman of admission day and time.
- Advise the woman of fasting time (minimum 6 hours for solids. Encourage woman to sip Preoperative Oral Fluids at a rate of 200mLs per hour up until the time they are sent for theatre.
- Follow up phone call with EPAS nurse/midwife 2-3 weeks post op

3.2 Documentation

- eMEDS
- Outpatient Script
- Integrated Clinical Notes

3.3 Education Notes

- Mifepristone pre-treatment prior to Misoprostol is more effective than misoprostol alone for missed miscarriage and anembryonic pregnancy, achieving complete miscarriage in 83% at 7 days and up to 94% of women by 2-3 weeks of follow-up.[5-9]
- Medical management of miscarriage with Misoprostol is effective in completing miscarriage in approximately 85% of women[12]
- Medical management can increase the chance of completion within one week compared with expectant management (81% vs 52%) and more women require analgesia[13]
- Outpatient management of miscarriage in the first trimester is safe and effective as well as being acceptable to women[5]
- Medical management is only suitable for women willing to have a miscarriage at home
- There is no difference in success for management of miscarriage when comparing vaginal vs oral Misoprostol. Women should be counselled about

the possible side effects (increased diarrhoea and fatigue if given orally compared with vaginally)[14,15]

- There is no difference in achieving successful completion of miscarriage when comparing single dose vs multiple dosing of misoprostol[15,16]
- Misoprostol is not approved for use in pregnancy by the Australian TGA. Use is "off label" in obstetrics and gynaecology, although it has been used extensively both within Australia and worldwide for this purpose. Mifepristone is also off label for use in miscarriage management but is also used extensively in this scenario. The woman should be informed of this.
- Contraindications to Mifepristone/Misoprostol include:
  - chronic adrenal failure
  - severe disease requiring steroid administration
  - hypocoagulation diseases
  - anticoagulant therapy
  - allergy to Mifepristone, Misoprostol or other prostaglandin
  - This regimen is not recommended in women with anaemia, renal failure, hepatic impairment, malnutrition or cardiovascular disease
- Side effects of Misoprostol include:
    - Nausea
    - Vomiting
    - Diarrhoea
    - Fever
    - Shivering/chills
    - Headache
    - Dizziness
- The incidence of Asherman syndrome after curettage for miscarriage can be up to 19% and increases with both the number of miscarriages and ERPCs a woman has.[15]
- The subsequent menstrual cycle usually recommences 4 – 8 weeks following the miscarriage
- Women can attempt another pregnancy following one normal menstrual cycle and ensuring the miscarriage is complete.[19]
- Women should be advised re the benefit of pre-conception folate and be advised to continue or start this supplement if they are planning to try and conceive in the next few months.

3.4 CBR should include implementation, communication and education plan

The revised CBR will be distributed to all medical, nursing and midwifery staff via @health email. The CBR will be discussed at ward meetings, education and patient quality and safety meetings. Education will occur through in-services, open forum and local ward implementation strategies to address changes to practice. The staff are asked to respond to an email or sign an audit sheet in their clinical area to acknowledge they have read and understood the revised CBR. The CBR will be uploaded to the CBR tab on the intranet and staff are informed how to access

3.5 Related Policies/procedures

- Gestational Trophoblastic Disease: Diagnosis and Management
- EPAS – Management of Women with Problems in Early Pregnancy
- Abortion - Termination of Pregnancy

3.6 References

1. Luise C, Jermy K, May C, Costello G, Collins WP, Bourne TH. Outcome of expectant management of spontaneous first trimester miscarriage: observational study. BMJ. 2002 Apr 13;324(7342):873-5. doi: 10.1136/bmj.324.7342.873. PMID: 11950733; PMCID: PMC101397.
2. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) Guidelines for the use of Rh(D) Immunoglobulin (Anti-D) in obstetrics. (2023). Available from: https://ranzcog.edu.au/wp-content/uploads/Anti-D-Guidelines.pdf
3. Agency for Clinical Innovation. Guideline: Maternity – Rh (D) Immunoglobulin. NSW Health (2015). Available from: Maternity - Rh (D) Immunoglobulin (Anti D)
4. National Blood Authority/ The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Universal sensitising events immunoprophylaxis in *Guideline for the prophylactic use of Rh D immunoglobulin in pregnancy care.* Australia. (2024) Available from: https://www.blood.gov.au/guideline-prophylactic-use-rh-d-immunoglobulin-pregnancy-care
5. J.S. Bagratee, V. Khullar, L. Regan, J. Moodley, H. Kagoro, A randomized controlled trial comparing medical and expectant management of first trimester miscarriage, *Human Reproduction*, Volume 19, Issue 2, 1 February 2004, Pages 266–271, https://doi.org/10.1093/humrep/deh049
6. Petersen SG, Perkins AR, Gibbons KS, Bertolone JI, Mahomed K. The medical management of missed miscarriage: outcomes from a prospective, single-centre, Australian cohort. Med J Aust. 2013 Sep 2;199(5):341-6. doi: 10.5694/mja12.11813. PMID: 23992191.
7. Schreiber CA, Creinin MD, Atrio J, Sonalkar S, Ratcliffe SJ, Barnhart KT. Mifepristone Pretreatment for the Medical Management of Early Pregnancy Loss. N Engl J Med. 2018 Jun 7;378(23):2161-2170. doi: 10.1056/NEJMoa1715726. PMID: 29874535; PMCID: PMC6437668.
8. Sinha P, Suneja A, Guleria K, Aggarwal R, Vaid NB. Comparison of Mifepristone Followed by Misoprostol with Misoprostol Alone for Treatment of Early Pregnancy Failure: A Randomized Double-Blind Placebo-Controlled Trial. J Obstet Gynaecol India. 2018 Feb;68(1):39-44. doi: 10.1007/s13224-017-0992-5. Epub 2017 Apr 22. PMID: 29391674; PMCID: PMC5783909.
9. Beatriz Bettencourt-Silva, Maria Teresa Rego, Cláudia Miranda, Ana Isabel Cunha, Filipa Brás, Cláudia Lopes-Guerra, Rui Miguelote, Ricardo Sousa-Santos, José Manuel Furtado,
10. The role of Mifepristoneon first trimester miscarriage treatment – A double-blind randomized controlled trial – MiFirsT, European Journal of Obstetrics & Gynecology and Reproductive Biology, Volume 289, 2023, Pages 145-151, ISSN 0301-2115, https://doi.org/10.1016/j.ejogrb.2023.08.391.
11. J.J. Chu, A.J. Devall, L.E. Beeson, P. Hardy, V. Cheed, Y. Sun, *et al.* Mifepristone and misoprostol versus Misoprostol alone for the management of missed miscarriage (MifeMiso): a randomised, double-blind, placebo-controlled trial
Lancet, 396 (10253) (2020), pp. 770-778

12. J. Zhang, J.M. Gilles, K. Barnhart, M.D. Creinin, C. Westhoff, M.M. Frederick A comparison of medical management with Misoprostol and surgical management for early pregnancy failure N Engl J Med, 353 (8) (2005), pp. 761-769
13. Blohm, F., Fridén, B.E., Milsom, I., Platz-Christensen, J.J. and Nielsen, S. (2005), A randomised double blind trial comparing Misoprostol or placebo in the management of early miscarriage. BJOG: An International Journal of Obstetrics & Gynaecology, 112: 1090-1095. https://doi.org/10.1111/j.1471-0528.2005.00632.x
14. M.W. Pang, T.S. Lee, T.K.H. Chung, Incomplete miscarriage: a randomized controlled trial comparing oral with vaginal Misoprostol for medical evacuation, *Human Reproduction*, Volume 16, Issue 11, November 2001, Pages 2283–2287, https://doi.org/10.1093/humrep/16.11.2283
15. Oi Shan Tang, Winnie Nga Ting Lau, Ernest Hung Yu Ng, Sharon Wai Heung Lee, Pak Chung Ho, A prospective randomized study to compare the use of repeated doses of vaginal with sublingual Misoprostol in the management of first trimester silent miscarriages, *Human Reproduction*, Volume 18, Issue 1, January 2003, Pages 176–181, https://doi.org/10.1093/humrep/deg013
16. Yossi Mizrachi, Ann Dekalo, Ohad Gluck, Hadas Miremberg, Lotem Dafna, Ohad Feldstein, Eran Weiner, Jacob Bar, Ron Sagiv, Single versus repeat doses of Misoprostol for treatment of early pregnancy loss—a randomized clinical trial, *Human Reproduction*, Volume 32, Issue 6, June 2017, Pages 1202–1207, https://doi.org/10.1093/humrep/dex074
17. Vorapong Phupong, Surasak Taneepanichskul, Rosarin Kriengsinyot, Nucharee Sriyirojana, Kelly Blanchard, Beverly Winikoff, Comparative study between single dose 600 μg and repeated dose of oral Misoprostol for treatment of incomplete abortion, Contraception, Volume 70, Issue 4, 2004, Pages 307-311, ISSN 0010-7824, https://doi.org/10.1016/j.contraception.2004.04.002.
18. Hooker, A.B., Lemmers, M., Thurkow, A.L., Heymans, M.W., Opmeer, B.C., Brölmann, H.A., Mol, B.W. and Huirne, J.A., 2014. Systematic review and meta-analysis of intrauterine adhesions after miscarriage: prevalence, risk factors and long-term reproductive outcome. *Human reproduction update*, *20*(2), pp.262-278.
19. Schliep KC, Mitchell EM, Mumford SL, Radin RG, Zarek SM, Sjaarda L, Schisterman EF. Trying to Conceive After an Early Pregnancy Loss: An Assessment on How Long Couples Should Wait. Obstet Gynecol. 2016 Feb;127(2):204-12. doi: 10.1097/AOG.0000000000001159. PMID: 26942344; PMCID: PMC4780347.

4 ABORIGINAL HEALTH IMPACT STATEMENT DOCUMENTATION

- Considerations for culturally safe and appropriate care provision have been made in the development of this Business Rule and will be accounted for in its implementation.
- When clinical risks are identified for an Aboriginal and/or Torres Strait Islander woman or family, they may require additional supports. This may include Aboriginal health professionals such as Aboriginal liaison officers, health workers or other culturally specific services

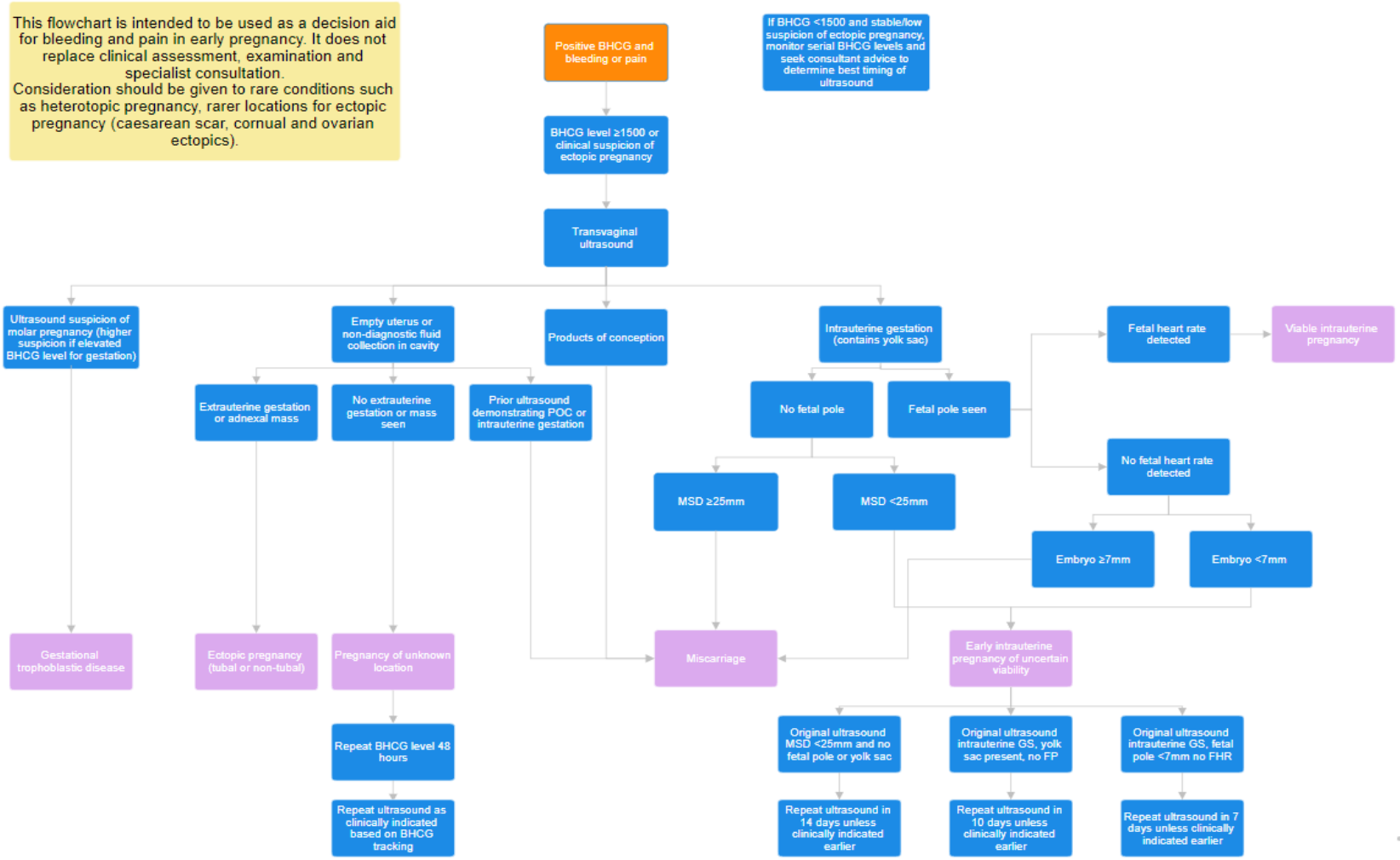
5 CULTURAL SUPPORT

- For a Culturally and Linguistically Diverse CALD woman, notify the nominated cross-cultural health worker during Monday to Friday business hours
- If the woman is from a non-English speaking background, call the interpreter service: NSW Ministry of Health Policy Directive PD2017_044-Interpreters Standard Procedures for Working with Health Care Interpreters.

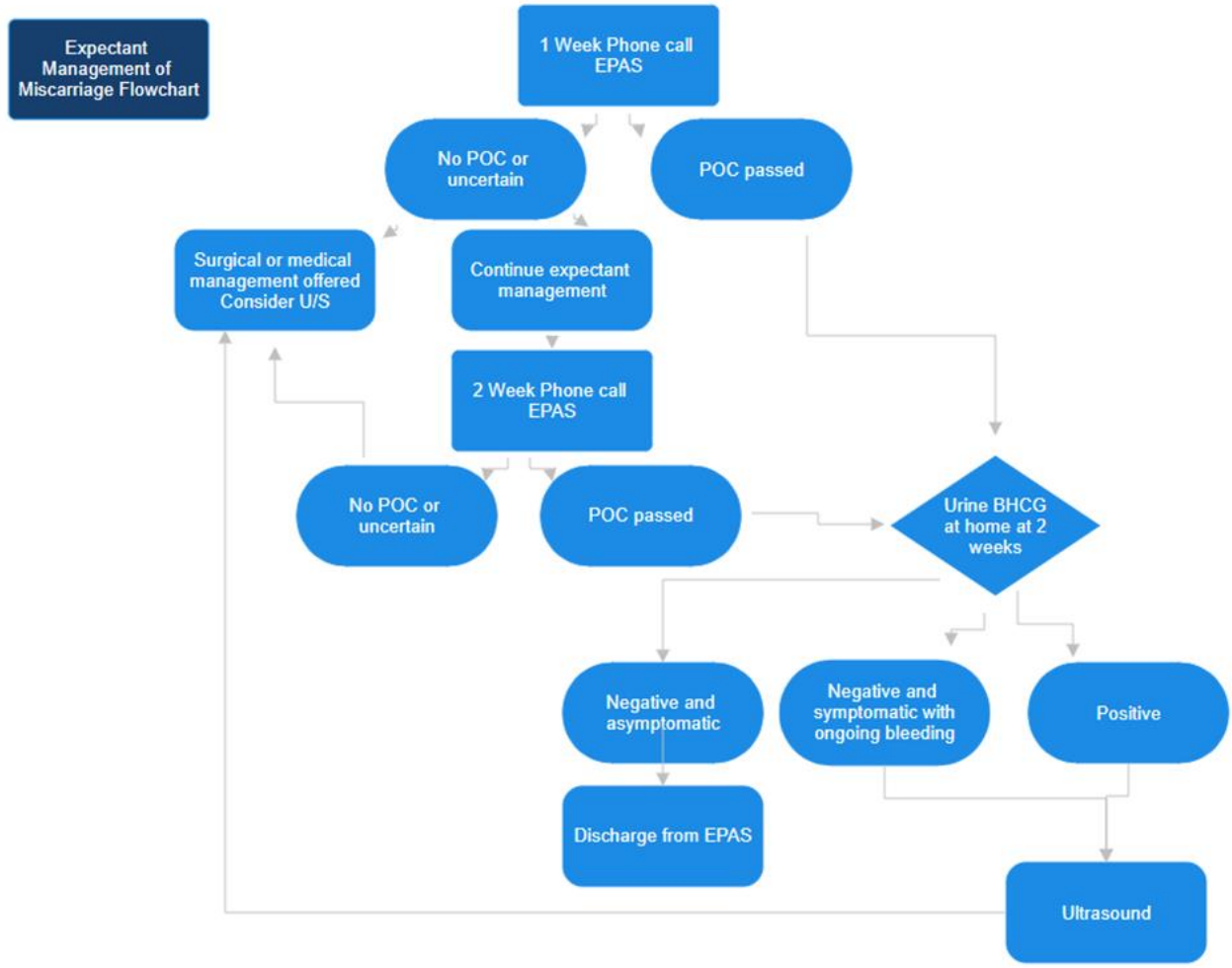
6 REVISION AND APPROVAL HISTORY

Date	Revision No.	Author and Approval
August 2011	1	Obstetric Guideline Group & Quality & Patient Safety Committee
February 2013	2	Amendment – attachment added Quality & Patient Safety Committee
December 2013	3	Quality & Patient Safety Committee
August 2024	4	Major review – Director Benign Gynaecology
15.8.24	4	Endorsed RHW BRGC
10.2.25	4	Endorsed with Updates – RHW BRGC

Appendix 1 - Flowchart: Bleeding and pain in early pregnancy



Appendix 2 – Flowchart: Expectant management of miscarriage



Appendix 3 – Flowchart: Outpatient medical management of miscarriage