Epilepsy in Pregnancy Guideline

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2	Pending EqIA	Obstetric Written Documentation Review Group	15/10/2021	17/01/2022	15/10/2024

Brief Summary of Document:	Guideline on pregnancy in epilepsy
Scope	For healthcare professional to appropriately manage pregnancy and postpartum care for women and birthing people with epilepsy. The vast majority of midwifery service users are women and we already have language in place to reflect this, however as a healthboard we recognise that not all people who give birth will identify as being female and therefore aim to use gender inclusive language wherever possible.

To be read in conjunction with:	▪ RCOG green top Guideline No. 68 Epilepsy in Pregnancy available at: https://www.rcog.org.uk/globalassets/documents/guidelines/green-top-guidelines/gtg68_epilepsy.pdf

	▪ NICE: Epilepsy in adults. Quality standard (QS26) Published: 28 February, 2013 Overview | Epilepsy in adults | Quality standards | NICE ▪ NICE: Special considerations for women and girls with epilepsy. Published: 14 May 2021 file:///Users/users/Downloads/epilepsy-special-considerations-for-women-and-girls-with-epilepsy.pdf ▪ Maternity epilepsy shared-care toolkit Pregnant women with epilepsy-a maternity[...]
Patient Information:	Epilepsy in Pregnancy. Patient Information. RCOG available at https://www.rcog.org.uk/en/patients/patient-leaflets/epilepsy-in-pregnancy/

Owning group	Obstetric Written Documentation Review Group

Reviews and updates		
Version no:	Summary of Amendments:	Date Approved:
1	New guideline	14/09/2017
2	Guideline update **Summary of Amendments:** **Inclusion of:** ▪ Use of the Maternity Epilepsy Shared Tool kit at the booking appointment ▪ Information regarding common AED's used to manage epilepsy and their teratogenicity as outlined by the Medicines & Healthcare products Regulatory Agency (MHRA) Epilepsy Medicines and Pregnancy ▪ General care for women with epilepsy during the antenatal, intrapartum and postnatal period as outlined by women with Epilepsy.co.uk ▪ Addition of appendices with flow charts outlining the management of pregnant and postnatal women with epilepsy; the emergency management of an epileptic seizure in pregnancy.	15/10/2021

Glossary of terms

Term	Definition
AED	Anti-epileptic Drugs
SUDEP	Sudden Unexpected Death in Epilepsy
TENS	Transcutaneous electrical nerve stimulation
WWE	Women with Epilepsy

Keywords	Epilepsy, pregnancy, contraception

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1. Introduction

Most women with epilepsy who are receiving optimal treatment for their epilepsy, and who are well informed, supported and fully counselled have uncomplicated pregnancies, normal deliveries, and healthy children. However, according the most recent MBRRACE the number of women dying from Sudden Unexpected Death in Epilepsy has doubled in comparison to the previous 3 years, with 13% of the maternal deaths being attributed to epilepsy and stroke (MMBRACE-UK 2020).

Epilepsy is the most common neurological disorder in women of childbearing age in the UK; it affects 0.5-1.0% of women. 0.5% of these women will require antiepileptic drugs (AED). There are a number of important health-related issues relating to the diagnosis of epilepsy and the use of AEDs in women of childbearing age.

AEDs are associated with teratogenic effects and uncontrolled seizures can cause adverse effects during pregnancy. Conversely, pregnancy and the menstrual cycle can affect seizure control due to hormonally induced alteration of the seizure threshold.

In 54% of women with epilepsy, there is no change in the frequency of fits. In 25-30%, fit frequency will increase.

2. Preconceptual Care

Women need good **contraceptive** advice to ensure that all pregnancies are planned.

In women of childbearing potential, the possibility of interaction with oral contraceptives should be discussed and an assessment made as to the risks and benefits of treatment with individual drugs.
In girls of childbearing potential, including young girls who are likely to need treatment into their childbearing years, the possibility of interaction with oral contraceptives should be discussed with the child and/or her carer, and an assessment made as to the risks and benefits of treatment with individual drugs.
In women and girls of childbearing potential, the risks and benefits of different contraceptive methods, including hormone-releasing intra-uterine devices (IUDs), should be discussed.

If a woman or birthing person is taking enzyme-inducing AEDs chooses to take the combined oral contraceptive pill, guidance about dosage should be sought from the summary of product characteristics.

Women on the progesterone only pill should be advised about other forms of contraception i.e. Depo Provera or Mirena IUD, which are not affected by enzyme induction. Particular AED's, which may affect the efficacy of oral contraceptives, are:

Carbamazepine (Tegretol®); Oxcarbazepine (Trileptal®); Phenytoin (Epanutin®); Topiramate (Topamax®); Primidone (Mysoline®); Phenobarbital (also known as Phenobarbitone).

Follow the RCOG guidance for emergency contraception.

Information and support for pregnant women and those wishing to become pregnant

Women, girls and birthing people with epilepsy need accurate information during pregnancy, and the possibility of status epilepticus and SUDEP should be discussed with all women and girls who plan to stop AED therapy.

The clinician should discuss with the woman, girl or birthing person the relative benefits and risks of adjusting medication to enable her to make an informed decision. Where appropriate, the woman's specialist should be consulted.

Women with generalised tonic-clonic (GTC) seizures should be informed that the fetus might be at relatively higher risk of harm during a seizure, although the absolute risk remains very low, and the level of risk may depend on seizure frequency.

Women should be reassured that there is no evidence that focal seizures, absence seizures and myoclonic seizures affect the pregnancy or developing fetus adversely unless they fall and sustain an injury.

Women should be reassured that an increase in seizure frequency is generally unlikely in pregnancy or in the first few months after birth.

Generally, women may be reassured that the risk of a tonic–clonic seizure during labour and the 24 hours after birth is low (1–4%).

Women with epilepsy should be informed that although they are likely to have healthy pregnancies, their risk of complications during pregnancy and labour is higher than for women without epilepsy.

Genetic counselling should be considered if one partner has epilepsy, particularly if the partner has idiopathic epilepsy and a positive family history of epilepsy.

Although there is an increased risk of seizures in children of parents with epilepsy, the probability that a child will be affected is generally low. However, this will depend on the family history.

Folic acid 5mg once daily should be started as soon as contraception is stopped. All WWE should receive 5mg folic acid for at least 3 months pre pregnancy.

3. Anti-Epileptic Drugs During Pregnancy

Compared with the general population, WWE who take AEDs during pregnancy may have a higher risk of having a baby who is born with a birth defect. Some of the AEDs may also affect how the baby grows in the womb and its brain development, potentially affecting thinking, language, attention, social and behavioural skill. The risk to the unborn baby depends on many different things, including which epilepsy medicines are used during pregnancy. Some epilepsy medicines have a higher risk of harming a baby during pregnancy than others. The risk of harm to the baby may also be increased if a woman or birthing person is taking a high dose of an epilepsy medicine or if she is taking more than one AED.

The clinician (either GP, Neurologist or Obstetrician) should undertake a medication review and discuss relative benefits and risks of adjusting medication to enable the patient to make an informed decision. This includes:

- The risk of teratogenesis (Please see the MHRA Epilepsy Guide to Medicines for more information https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/950069/Epilepsy-medicines-in-pregnancy-leaflet.pdf) or UK teratology Information Service(UKTIS) www.uktis.org
- The potential risks to the fetus from frequent generalised tonic-clonic seizures.

- Possibility of stopping anticonvulsant medication for the first trimester if the woman or birthing person has been seizure free for more than two years. However, this should be risk assessed and actioned on an individualised basis.
- Reiterate the possibility of status epilepticus and SUDEP

Lamotrigine (brand name Lamictal®) and levetiracetam (brand name Keppra®) are safer to use during pregnancy than other epilepsy medicines. Research indicates that they do not increase the risk of physical birth abnormalities compared with the general population.

Taking the epilepsy medicine sodium valproate or valproic acid can cause serious harm to an unborn baby. Latest figures suggest that if 100 women take valproate medicines during their pregnancy, about 10 of these babies will be born with physical birth abnormalities. This compares with 2 to 3 out of 100 of the general population. Additionally, about 30 to 40 of every 100 children exposed to valproate medicines during gestation will develop learning difficulties and neurodevelopmental disorders (such as autism).

Taking phenobarbital or phenytoin during pregnancy increases the risk that the child may have difficulties with learning and thinking ability.

Phenobarbital, topiramate, or zonisamide (Zonegran®) taken during pregnancy can increase the risk of the baby being born smaller than expected compared with the general population.

The risks of taking gabapentin (Lecomig®, Neurontin®) and pregabalin (Alzain®, Axalid®, Lecaent®, Lyrica®) during pregnancy are not yet fully understood. Some research suggests that taking pregabalin during pregnancy may slightly increase the risk of a baby being born with physical birth abnormalities.

Zonisamide (Zonegra) the risks are not known. Further research is required to determine whether zonaisamide increases the risk of a birth anomaly or a learning or thinking disability.

n®)
Clobazam – some research suggests that clobazam may slightly increase the risk of a baby being born with physical birth abnormalities.

Those WWE taking teratogenic AED’s, especially sodium valporate/valproic acid should be referred to Fetal Medicine.

4. Antenatal Care

WWE should commence folic acid at a dose of 5mg once daily prior to pregnancy and continue until at least 12 weeks’ gestation.

WWE should have their initial appointment with the community midwife as soon as possible to ensure appropriate referrals are initiated. Community midwives should initiate the ‘Pregnant Women with Epilepsy Maternity Tool kit proforma’ with the woman or birthing person (please see appendices for links if no hard copy available).

Midwives should give patient information leaflets as directed in the tool kit, especially the RCOG Epilepsy in Pregnancy patient information leaflet (Appendix 2). Sign post women to the Epilepsy Action:During pregnancy (appendix 3) and women with epilepsy (appendix 4)websites.

All pregnant WWE should be referred for consultant-led care who will liaise with neurologist and form an individualised plan of care. The 'Epilepsy Maternity Tool Kit' should be checked and completed and followed by the obstetrician / neurology specialist (either directly or by email / mail) and this should be recorded in the individualised plan for intrapartum and postpartum care. WWE should be encouraged to download and use the EpSMon: epilepsy self-monitoring app (APPENDIX 5).

WWE who are unexpectedly pregnant and have had no pre-pregnancy counselling, are taking multiple AED's, are taking Valproate, or have poorly controlled epilepsy should be reviewed urgently by their neurology team.

All WWE who are taking AEDs that could cause fetal abnormalities (especially sodium valproate), taking multiple AEDs, or who have active epilepsy despite taking AEDs should be offered a referral to the Fetal Medicine Unit.

All Women using AEDs should have a paediatric referral for an individualised care plan for the neonate following birth.

Risk of having a baby born with a physical birth abnormality		
General population		2 to 3 out of 100 babies
Carbamazepine	Curatil®, Tegretol®	4 to 5 out of 100 babies
Phenobarbital	Phenobarbital Accord, Phenobarbital Elixir	6 to 7 out of 100 babies
Phenytoin	Epanutin®	About 6 out of 100 babies
Topiramate	Topamax®	4 to 5 out of 100 babies
Valproate	Epilim®, Depakote®, Convulex®, Episenta®, Epival®, Kentlim®, Syonell®, Orlept® and Valpal®	About 10 out of 100 babies

All pregnant WWE should be encouraged to, or allow their obstetrician to, register with the UK Epilepsy and Pregnancy Register (APPENDIX 6.)(www.epilepsyandpregnancy.co.uk).

All pregnant women with poorly controlled epilepsy should undergo a complex anaesthetic review.

Pregnant women and girls who are taking AEDs should be offered a high-resolution ultrasound scan to screen for structural anomalies. This scan should be performed at 18–20 weeks' gestation by an appropriately trained ultrasound sonographer. However, earlier scanning can be considered to allow earlier detection of major malformations.

All pregnant WWE on AEDs should be offered serial growth scans as they are at more risk of having a small for gestational age baby. The interval of scans should be considered on an individualised basis with a minimum of scans at 28/40 and 36/40.

All pregnant WWE on AEDs should be offered a referral to the Fetal Medicine Unit for a fetal cardiac scan as there is an increased risk of cardiac abnormalities.

In the antenatal period, WWE should be regularly assessed for the following: risk factors for SUDEP, seizure triggers, such as sleep deprivation and stress; adherence to AEDs; and seizure type and frequency.

Consideration should be given for early use of anti-emetics (oral or IV) for WWE experiencing prolonged episodes of vomiting as this can interfere with the absorption of AED's, and dehydration can provoke seizures.

If an antenatal admission is required, WWE should be asked to bring in their usual medications and if they are at risk of seizures should not be accommodated in a single room unless accompanied by their partner.

Information should be given to all patients on safety precautions: Epilepsy Society risk assessments Appendix 7.). Relatives or friends should be given information on first aid (Information on first aid and epilepsy, Appendix 8) , including how to place the woman or birthing person in the recovery position in the event of a seizure**.** Women and birthing people should be advised to shower or bath in shallow water and not to bathe alone in the house or with the door locked.

Do not routinely monitor AED levels during pregnancy. If seizures increase or are likely to increase, monitoring AED levels (particularly levels of lamotrigine and phenytoin, which may be particularly affected in pregnancy) may be useful when making dose adjustments**.**

5. Intrapartum Care

Place and timing of birth

A diagnosis of epilepsy is not an indication for planned Caesarean section delivery or routine induction of labour. If induction of labour is required, then all usual methods for induction are appropriate.

Women should give birth in an obstetric unit with facilities for maternal and neonatal resuscitation and treating maternal seizures.

The need for continuous electronic fetal monitoring should be decided on an individual basis. Women who are at risk of seizures in labour or have a seizure in labour should be monitored continuously.

Water birth should not be routinely offered to WWE but may be considered on an individualised basis. Women who are not taking AED's and who have been seizure free for a significant (seizure free in pregnancy and 12 months form last seizure) maybe offered a water birth after discussion with their consultant/epilepsy specialist.

The risks of seizures increase around delivery (1- 4%) therefore women using AEDs should be encouraged to take their prescribed medication at the usual times. Early use of anti-emetics and IV fluids should be considered for WWE in labour to avoid the malabsorption of AEDs, and to avoid becoming dehydrated. Intravenous access should be considered if the risk of seizure is felt to be high. IV or PR Diazepam or IV lorazepam may be used to control seizures.

Analgesia

Adequate analgesia should be encouraged to avoid seizure triggers such as stress, pain or tiredness. Pain relief options such as TENS, Epidural and remifentanil are all suitable for WWE. Pethidine should not be given; Diamorphine should be considered as an alternative. When WWE use Entonox they should avoid hyperventilation especially if they suffer from absence seizures.

Neonatal Vitamin k

Babies should receive intramuscular Vitamin K 1mg at birth to prevent the haemorrhagic disease of the newborn.

6. Postnatal Care

WWE should be advised on postpartum management to reduce the risk of seizures and safe care for their baby. Overall, the risk is low, but there is a slight increase than during pregnancy due to pain, stress and tiredness triggers. Following birth women should be placed in a bay with other people or in a side room accompanied at all times by a partner.
They should be provided with information on safe conduct at home i.e. changing nappies on the floor, not bathing with the baby when alone at home, not carrying the baby down the stairs.
Signpost women to Epilepsy action: caring for a baby & young children (Appendix 9.)
Where possible, advise women not to sleep alone due to risk of nocturnal seizure

WWE on AEDs who have had a dose increased in pregnancy should have a plan made for the postnatal timing of dose reduction as documented in the shared care tool kit. If no plan is documented, contact the Neurology Team following delivery for advice. Higher doses are usually maintained immediately post-partum given the increased seizure risk during this time but should side effects occur reductions could be made in conjunction with Neurology advice. WWE should not alter their medications without the advice of their Neurologist/ GP.

Arrange urgent postnatal review by neurologist/epilepsy specialist if:

- When there is a diagnostic uncertainty, or when an urgent treatment review is recommended
- Seizures increased or were uncontrolled during pregnancy
- There is a history of prolonged seizures or status epilepticus
- Baby was born with a major congenital malformation
- The woman or birthing person is taking sodium valproate
- The woman or birthing person stopped epilepsy medication during pregnancy

When considering discharging a woman or birth person from midwifery care, ensure WWE know whom to contact in an emergency if there is any deterioration in her seizure control or mental well-being.

Postnatal analgesia

Women should be advised that paracetamol, ibuprofen, morphine (Oramorph®) and diclofenac are all suitable analgesia options. Tramadol should be avoided.

Breast-feeding and care of the baby

All should be encouraged to breast feed, as there is no reason why mothers on antiepileptic medication should not breastfeed (possible exceptions are women taking phenobarbital and primidone).

Contraception

Prior to discharge WWE should be advised about postnatal contraception to avoid unplanned pregnancy. This should be documented in the postnatal book (please see contraception advice as documented earlier).

7. Emergency Seizure Management

If WWE experience a seizure in the absence of an additional diagnosis of pre-eclampsia, emergency management should be:

Call for help

Left lateral Tilt

15L/min Oxygen

Commence CSFM (if antenatal / Labour)

IV Diazepam 5-10mg administered as a slow bolus **or** IV Lorazepam 2-4mg bolus repeated every 10-20 minutes, **or** PR Diazepam 10-20 mg repeated every 10-20 minutes, and a further dose 15 minutes later if high risk of seizures continue, or midazolam 10 mg as a buccal preparation

If seizures are not controlled, consider administration of phenytoin or fosphenytoin.The loading dose of phenytoin is 10–15 mg/kg by intravenous infusion.

If there is persistent uterine hypertonus, consider administration of tocolytic agents. After the mother is stabilised, continuous electronic fetal monitoring should be continued. If the fetal heart rate does not begin to recover within 5 minutes or if the seizures are recurrent, expedite delivery. This may require caesarean delivery if vaginal delivery is not imminent.

8. Contact Number

Hywel Dda Epilepsy Nurse contact details for : 01267239640 / 01267239662

9. Auditable Standards

- RCOG patient information leaflet ‘ Epilepsy in pregnancy’ to be given, discussed and filed in notes found at https://www.rcog.org.uk/en/patients/patient-leaflets/epilepsy-in-pregnancy/
- Use of the ‘Pregnant women with epilepsy maternity shared care tool kit’ to be filed in notes.
- Documentation of discussion of the risks to mother and baby from epilepsy and AED in the long and short term at the first consultant appointment and risk assessment for SUDEP.
- MDT involvement and care plan re medication for women with poorly controlled epilepsy or on AED
- Appropriate referrals to the Fetal Medicine Unit.
- Number of women being enrolled onto the UK Epilepsy and Pregnancy Register.

10. References

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Meador K., Reynolds M., Crean s., Farbach k., Probst C., Pregnancy outcomes in women with epilepsy: a systemic review and meta – analysis of published pregnancy registries and cohorts. Epilepsy Res 2008: 81:1-13

Morley, K. (2020) Reducing risks for pregnant women with epilepsy: A qualitative study exploring experiences of using a toolkit at the antenatal booking appointment. *Epilepsy & Behavior*

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RCOG (2016) Epilepsy in pregnancy. Royal College of Obstetricians and Gynaecologists. Green-top Guideline No 68. June 2016

The Epilepsies NCGC 2012 National Clinical Guideline Centre Clinical Guideline 20. Catherine Nelson Piercy. Ed.Dunitz 2002 Handbook of obstetric medicine.

NICE Epilepsy CG137 Jan 2012

NICE: Special considerations for women and girls with epilepsy. Published: 14 May 2021 file:///Users/users/Downloads/epilepsy-special-considerations-for-women-and-girls-with-epilepsy.pdf

11. The Management of Pregnant Women with Epilepsy Flowchart

Unplanned pregnancy, use of polytherapy, active epilepsy with AEDs, focal epilepsy, and history of prolonged seizures, women taking Sodium Valporate =
Urgent review by neurology team, obstetric consultant and consider referral to FMU.
Commence 5mg folic acid.
Urgent appointment with consultant.
Consultant-led care.

Planned pregnancy
History of AED's and seizure-free, recent review by neurology team with a plan of care in place.
Continue 5mg folic acid.
Consultant-led care.

Antenatal Care

- Complete Maternity epilepsy shared-care toolkit
- Consultant appointment with collaboration with neurology team, complete shared tool kit.
- Information provided to women on epilepsy and pregnancy, the benefit and risks of AEDs and the effects of seizures on the fetus.
- Early management of uncontrolled vomiting and dehydration to avoid seizures
- Detailed anomaly scan by 20 /40
- Serial Growth scans from 28/40
- FMU referral by 24/40 if WWE on teratogenic AEDs for fetal cardiac scan / review
- Paediatric referral for plan of care for the neonate following birth if WWE on AED's
- Complex anaesthetic review
- Patient safety precaution information
- IOL (if required): All methods of induction are suitable for WWE

Intrapartum care.

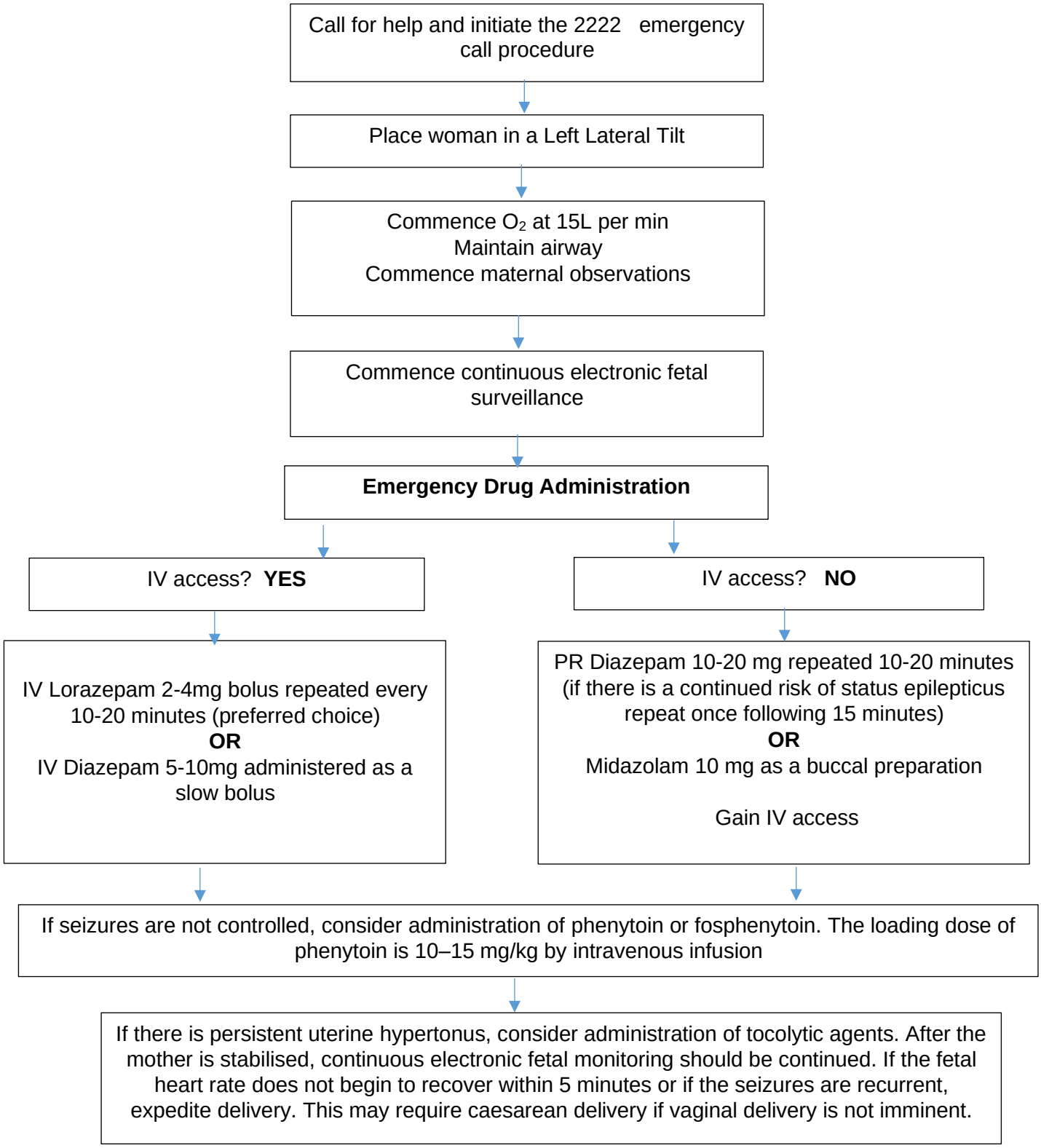
- WWE should birth their babies in an obstetric led unit with appropriate resuscitation facilities
- WWE should receive one-to one care at all times in labour and should not be left unattended.
- WWE should be reminded to take their AED as prescribed when in labour
- All analgesia options are available apart from pethidine
- Water birth is an option provided there has been a risk assessment and a plan agreed and documented by an obstetric consultant.
- Emergency seizure medication should be readily available on the ward

Postnatal Care

- Women should not be unaccompanied on the postnatal ward; they should be in a bay either with other women or in a side room accompanied by their partner.
- Women should continue on their medication as prescribed or as outlined by the neurology team. If AED doses were increased in pregnancy and a plan is not in place then a review is required, either with GP or Neurology team by day 10 for a plan to reduce dosage.
- All women should be encouraged to breast feed
- Paracetamol, ibuprofen, oral morphine and diclofenac are all suitable for WWE.
- Women and their family should be made aware that pain, stress and tiredness can trigger seizures.
- On discharge discuss and provide information of safe home practices when caring for the baby etc.
- Inform women of the importance of contraception and planned pregnancy. Arrange contraception prescription if required.

12. Emergency Management of an Epileptic Seizure in Pregnancy

In patients where seizures cannot be clearly attributed to epilepsy, protocols for the management of eclampsia should initially be followed



13. Appendices

Links to patient information and toolkits

1. Pregnant WWE **Maternity epilepsy shared-care maternity toolkit proforma** https://www.rcog.org.uk/globalassets/documents/get-involved-in-our-work/pregnant-women-with-epilepsy-a-maternity-toolkit-2016.pdf
2. **RCOG patient information on epilepsy in pregnancy** https://www.rcog.org.uk/en/patients/patient-leaflets/epilepsy-in-pregnancy/
3. **Epilepsy Action: During pregnancy** https://www.epilepsy.org.uk/info/daily-life/having-baby/pregnancy
4. **Women with Epilepsy.** https://www.womenwithepilepsy.co.uk/
5. EpSMon: **epilepsy self-monitoring app** https://sudep.org/epilepsy-self-monitor
6. **UK Epilepsy and Pregnancy Register** (www.epilepsyandpregnancy.co.uk).
7. Safety in pregnancy templates:

   Safety at home template: https://epilepsysociety.org.uk//sites/default/files/2020-07/Safetyandrisktemplate-safetyathomeAug2019_4.pdf

   Safety outside template: https://epilepsysociety.org.uk//sites/default/files/2020-07/Safety%20and%20risk%20template-safetyoutsideyourhomeAug2019_2.pdf

8. First Aid and Epilepsy https://www.epilepsy.org.uk/info/firstaid/what-to-do
9. Epilepsy action: **Caring for a baby & young children** https://www.epilepsy.org.uk/sites/epilepsy/files/Looking_after_baby_or_small_child_when_you_have_epilepsy.pdf