Frimley Health
NHS Foundation Trust

Pregnant Women with Epilepsy

Key Points

- Pre-pregnancy counselling
- Medication review
- Safety advice
- Intrapartum care

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Abbreviations

AED	Anti-epilepsy drugs
ANC	Antenatal Clinic
ESN	Epilepsy specialist nurse
PCA	Patient controlled analgesia
PET	Pre-eclampsia
WWE	Women with epilepsy

Contents

1. Pre-Pregnancy Care

i. Direct women to RCOG Patient Information Leaflet: https://www.rcog.org.uk/globalassets/documents/patients/patient-information-leaflets/pregnancy/pi-epilepsy-in-pregnancy.pdf

ii. Ensure optimal seizure control on lowest effective dose. Arrange neurology review if not already under active management of a neurologist.

iii. Pre-pregnancy counselling should be performed for all women of child-bearing age. This should be ideally performed by their own neurologist +/- input from an obstetrician/maternal medicine specialist.

iv. Contraception options should be discussed for all women of child-bearing age. WWE should avoid unplanned pregnancies, particularly if they are on AED's such as valproate/phenytoin/phenobarbital.

v. Ensure women with epilepsy (WWE) on Sodium Valproate have had neurology review for consideration of alternative AEDs (anti-epileptic drugs) if appropriate. There is a Pregnancy Prevention Programme for women on valproate. However, for some women, it is recognized that sodium valproate may be the most effective AED, and some women may choose to become pregnant on it.

vi. Prescribe 5mg folic acid once daily to be started 3 months before stopping contraception and continued until 13 weeks completed gestation, for every pregnancy.

vii. Give advice about small increased chance of congenital malformations in women with epilepsy. Background risk of congenital malformations is 2-3% in the general population, compared with around 3-4% in women taking monotherapy anti-epilepsy medication (higher if on sodium valproate or polypharmacy, see **Table 1** for individual drug risk)

viii. Reassure WWE that most have uncomplicated pregnancy and birth and give birth to healthy babies.

ix. Discuss safety aspects of epilepsy in pregnancy and birth and how to access appropriate pregnancy care. Most of the risks in WWE is related to the risk of injury and trauma to the woman rather than the effects of AED medication.

x. Advise that SUDEP (sudden death in epilepsy) is more common in pregnancy and that poorly controlled epilepsy, often caused by poor drug compliance, is the main contributory factor. Other recognised risk factors include nocturnal seizures and earlier age of epilepsy onset (before the age of 16 years)[2].

xi. Advise that driving privileges may be altered if she experiences a seizure or doses of medication are changed.

Table 1 - Risk of having a baby born with physical birth abnormality	
General population	2-3%
Lamotrigine	2-3 %
Levetiracetam	2-3%
Carbamazepine	4-5%
Topiramate	4-5%
Phenytoin	6%
Phenobarbital	6-7%
Valproate	10%

2. Antenatal Care

i. Advise early hospital antenatal clinic booking appointment (<12/40)

ii. All pregnant women should be encouraged to enter their details on the UK Epilepsy and Pregnancy register: www.epilepsyandpregnancy.co.uk

iii. Close liaison between multi-disciplinary team (midwife, epilepsy specialist nurse, neurologist and obstetrician) is key. If not already under a neurologist, refer to Consultant Neurologist (Dr Clare Galtrey for FPH and Dr Krishna Chinthapalli for WPH). If under the care of a neurologist outside of FHFT, this should continue. Ensure all correspondence is copied to them and request copies of their relevant correspondence back. Ana Pardal Martins (Epilepsy Specialist Nurse) should be copied into all relevant medical correspondence for FPH patients. Please note that there is no epilepsy specialist nurse at Wexham.

iv. Refer to information for clinicians if the woman is taking sodium valproate https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/708850/123683_Valproate_HCP_Booklet_DR15.pdf)

v. Document detailed seizure history including description and relevant triggers and approximate date of last fit. Women who have had a seizure in the year prior to conception, or during pregnancy should be seen in the ANC in each trimester (<12/40, 26-28/40 and 34-36/40).

vi. A schedule of care should be agreed with the woman at the first Consultant ANC, depending on her epilepsy control and other obstetric risk factors. As a minimum, all women with epilepsy should be seen in the obstetric/epileptic ANC in the first trimester and again at **28-30** weeks gestation.

vii. Women should be counselled regarding postnatal contraception by 28 weeks (see section 5 – Contraception).

viii. WWE who are on medication (or not been fit free for > 1year) should be discussed in the Maternal Medicine MDT between 20-30 weeks gestation, with a clear plan for pregnancy and delivery documented in the notes.

ix. Ensure the woman has been offered routine antenatal investigation and screening with appropriate follow up as indicated by findings. There is only a small additional chance of fetal abnormality over and above the background congenital malformation rate for most WWE, so no additional scans to the routine 12 and 20 weeks scans need to be offered to those women who are well controlled on monotherapy. Women on polypharmacy or valproate should be discussed with the local epilepsy Consultant Obstetrician (Miss Sukhera Furness at FPH or Mr Femi Eniola at WPH) for consideration of additional investigation.

x. The odds ratio of fetal growth restriction in a woman with epilepsy taking AEDs is 1.26 compared with women not taking AEDs[3]. Serial growth scans are not required on the basis of taking AEDs alone but may be needed if the women has other criteria for serial scanning.

xi. Re-iterate the importance of drug compliance and seizure control. Make patient aware that morning sickness/hyperemesis may worsen seizure control due to poor absorption of AED's. Treatment of morning sickness may be necessary to ensure therapeutic AED levels are achieved. Alternative routes of administration may need to be considered, with early recourse to hospital admission if unable to tolerate usual AEDs or deterioration in seizure control.

xii. Healthcare professionals should be alert to signs of depression, anxiety and any neuropsychiatric symptoms in mothers exposed to AEDs.

xiii. WWE should be cared for in an area where continuous observation by a carer, partner or member of staff can be achieved if hospital admission is indicated.

xiv. Serum levels of some AEDs (Lamotrigine, Levetiracetam, Carbamazepine and Phenytoin) can fall in pregnancy, especially in the second/third trimester[4].

xv. Levels should be checked each trimester and the woman's epilepsy team should be informed of the result. A recommended schedule for drug levels is booking, 20 weeks and 32 weeks.

xvi. Consider an anaesthetic review if epilepsy poorly controlled or other complicating features (e.g., space occupying lesion, learning difficulties).

xvii. Follow up in ANC is dependent upon individual circumstances. Routine antenatal care with midwife to continue concurrently. Recommend Epilepsy Specialist Nurse (ESN) review in the third trimester (FPH).

xviii. Consider prescribing menadiol sodium phosphate 10mg once daily >/= 36/40 for those women taking enzyme-inducing AED's (phenytoin, phenobarbitone, carbamazepine, oxycarbamazepine, primidone, topiramate).

xix. A long acting benzodiazepine can be considered in the peripartum period for women at high risk of seizures. A short course of Clobazam (10mg 12 hourly in labour followed by 10mg once nightly post-partum for one week, followed by 5 mg then stopping) can be used to reduce the risk of seizures usually triggered by sleep deprivation or stress. If breastfeeding, advise that the baby may be more sleepy than usual as Clobazam may be metabolized slowly.

xx. Aim for spontaneous vaginal delivery in an obstetric-led unit. Early induction of labour or caesarean section is not usually indicated other than for obstetric reasons. Early delivery may occasionally be considered in poorly controlled women if delivery is likely to improve seizure control.

xxi. Recommend neonatal intramuscular Vitamin K.

xxii. Encourage breastfeeding.

xxiii. General advice:

- Avoid baths unless another adult is present, recommend showers
- Teach partners/relatives how to recognize seizures and how to facilitate the recovery position in the event of a seizure
- Avoid triggers including lack of sleep, stress, low blood sugar levels, alcohol, and recreational drugs.
- Emergency assistance should be sought if the seizure lasts for more than 5 minutes or recovery is prolonged or abnormal for the woman. The woman, or attendant, should be advised to call an ambulance to the nearest emergency department with an obstetric service.

3. Intrapartum Care

i. Keep well hydrated, mobile and avoid ketosis

ii. Augmentation may be considered in women with a prolonged latent phase to reduce exhaustion.

iii. Advise women to take their medications as normal throughout labour. Anti-emetics may be required if nauseous.

iv. Ensure that women are always in the presence of a responsible adult during labour. Advise birthing partners of methods by which to call for help in an emergency.

v. Baths and water births may be permitted for those women with well controlled (seizure free for duration of pregnancy) epilepsy, provided the woman is never left alone. Please ensure that the resident consultant is aware of WWE labouring in the pool.

vi. Intravenous access is not necessary for most women with epilepsy in pregnancy. In some women this may need to be considered; if her epilepsy is poorly controlled; if she has had a generalized seizure during this pregnancy or a seizure in labour in a previous pregnancy, or there is an obstetric indication.

vii. Continuous fetal monitoring is recommended in women at high risk of seizure in labour and following an intrapartum seizure.

viii. All usual obstetric forms of analgesia may be offered (e.g., TENS, entonox, morphine sulphate, epidural, remifentanyl PCA). Pethidine should be avoided as it can promote seizures in susceptible women.

ix. The chance of seizure in labour is 3-4% for WWE[4,5]. Consider cardiac, metabolic, intracranial and neuropsychiatric causes, in addition to epilepsy[6]. Once more information from observations, history and investigations are available, on-going management can be tailored to the individual.

x. <u>In the event of a seizure</u>

- Call for help (2222 for obstetric emergency). The resident obstetrician and anaesthetist on-call should be informed.
- Place woman in left lateral tilt or provide manual displacement of the uterus.
- Administer high flow oxygen via a re-breathe mask
- Once the fit has subsided, move the woman into the recovery position
- If the seizure is typical for the patient and there is no hypertension or significant proteinuria, it may be attributed to her epilepsy.
- A diagnosis of **eclampsia** must always be considered. **Magnesium sulphate** should be administered if there are any concerns or features that are inconsistent with the usual fit description.
- If the fit is typical for the patient, labour may be allowed to continue as normal.
- If the fit lasts longer than anticipated for the patient or >/= 5 minutes, intravenous access should be obtained and treatment with emergency anti-epileptics considered, see below. Administration of drugs should NOT be delayed obtaining intravenous access.
- **Buccal Midazolam 10mg** (pre-filled syringe) then further 10mg after 5-10 minutes if required and no IV access obtained yet.
- **Rectal Diazepam 10mg** (note slow absorption) then repeat after 5 minutes if required and no IV access obtained yet.

Emergency treatment of prolonged seizures (> 5minutes or very frequent seizures):

- Put out 2222 NEWS and obstetric emergency call
- Secure airway
- Give high-concentration oxygen
- Assess cardiac and respiratory function
- Secure intravenous access in a large vein and take blood for blood gases, glucose, renal and liver function, calcium and magnesium, full blood count (including platelets), blood clotting and AED drug levels
- In case of status epilepticus, the patient should be treated urgently because every second of delay leads to greater likelihood of medically refractory status and higher mortality. Intubation, and or delivery, may be required in order to facilitate resuscitation of the mother.
- See attached (Appendix 2) for Emergency Management of Convulsive Status Epilepticus in Adults.
- Observations of maternal pulse, BP, RR and oxygen sats to be performed every 5 minutes, dropping to every 15 minutes when condition stable.
- There is no need for continuous EFM or auscultation of the fetal heart until the seizure has terminated and maternal condition has stabilised. Fetal bradycardias are common during seizures and rarely cause any long-lasting effect. A CTG can be commenced, if sufficiently advanced gestation, once maternal condition has improved.
- Consider whether safe to allow labour to continue or to deliver. Also consider best place to provide ongoing care.

4. Postnatal Care

i. All women who have had a seizure 1 month prior to pregnancy or during labour should be observed closely for the next 72 hours.

ii. Women with active epilepsy should not be cared for in a side room in the post-natal period, unless a responsible adult can be close at hand at all times.

iii. Encourage breastfeeding. Ensure safe positioning of the baby during feeding in the event of a maternal seizure to avoid falls/trauma.

iv. AEDs should be continued in the same dose/regime as during pregnancy. AEDs that have had an increase in dose during pregnancy should be reviewed within 10 days of delivery to avoid post-partum toxicity[6].

v. General advice:

- Advise reduction of seizure triggers
- Consider use of breast milk pumped during day to be used by partner/relative for night feeds.
- Recommend breastfeeding in a comfortable position on floor or in low chair
- Discuss safe practice when caring for baby, e.g., changing baby on floor/in cot, supervised bathing for both, avoid use of slings, avoid sleeping with the baby.
- Advise additional help at home initially after discharge

- Offer pre-pregnancy counselling for future (as above).

5. Care of the Baby

i. Advise Vitamin K 1mg IM for the baby to prevent haemorrhagic disease of the newborn,

ii. Some babies may suffer withdrawal symptoms from maternal AED usage (jitteriness, poor feeding, seizures) and require increased observation by neonatal team. Breastfeeding can help reduce withdrawal symptoms.

6. Contraception Advice

i. Offer contraceptive advice reminding those on enzyme inducing AED's (see **table 2**) that they interfere with hormonal contraception (COCP, POP, contraceptive implant/patches, vaginal ring and emergency contraceptive pill).

ii. Women on Lamotrigine should be advised that hormonal contraception may reduce their Lamotrigine levels, increasing their risk of seizures. It is also possible that Lamotrigine can reduce the effectiveness of hormonal contraception.

iii. If hormonal contraceptive use in women taking Lamotrigine is unavoidable, this should be discussed with the woman's neurologist and obstetrician to advise on increasing dosage and monitoring levels. A continuous regime is recommended to avoid cyclical changes in Lamotrigne levels[7].

iv. Women with epilepsy are advised that the most effective contraceptives are long-acting progesterone only contraception (Mirena, implant), copper IUCD or barrier methods.

Table 2. Enzyme inducing AEDs	
Carbemazepine (Tegretol)	Phenobarbital
Cenobamate	Phenytoin (Epanutin)
Eslicarbazepine (Zebinix)	Primidone
Oxcarbazepine (Trileptal)	Rufinamide (Inovelon)
Perampanel (Fycompa)	Topiramate (Topamax)

7. Neurology follow up

Ensure postnatal follow up with woman's usual neurology team organized prior to discharge.

Contact numbers of team if problems between appointments:

WPH:

Consultant Obstetrician Mr Femi Eniola 0300 615 3377.

FPH:

Epilepsy Specialist nurse (ESN), Ms. Ana Pardal Martins 0300 613 9816/ 0300 613 4082
Consultant Obstetrician Miss Sukhera Furness 0300 613 9328

References:

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6. RCOG (2016) Epilepsy in pregnancy (Green-top guideline no. 68). Available at: https://www.rcog.org.uk/guidance/browse-all-guidance/green-top-guidelines/epilepsy-in-pregnancy-green-top-guideline-no-68/.
7. FRSH Drug interactions with Hormonal Contraception (May 2022)

Appendix 1: Women with epilepsy in pregnancy care plan to be uploaded to maternal notes

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Women with epilepsy in pregnancy care plan

Addressograph

Past obstetric history:
Co-morbidities:

Date: Name of clinician filling form:

Seizure type		
Seizure description		Approx last seizure
Pre-pregnancy advice Discuss • Risk of SUDEP • High dose folic acid • Importance of drug compliance • Need for drug monitoring in pregnancy	Yes / No (circle one)	
Details of neurologist	Name: Hospital:	
Folic acid	Dose	Approx date started
Medication 1. 2. 3. 4. (Consider Menadiol sodium phosphate (Vitamin K) 10mg	Dose	Time schedule

od po from 36 weeks to delivery if enzyme inducing AED)		

Date of medication dose adjustments		
Drug Levels Booking 20 weeks 32 weeks		
Seizure in pregnancy	Date	Severity

Safety advice discussed

- Avoid baths unless another adult is present, recommend showers
- Teach partners/relatives how to recognize seizures and how to facilitate the recovery position in the event of a seizure
- Avoid triggers including lack of sleep, stress, low blood sugar levels, alcohol, and recreational drugs.

Emergency assistance should be sought if the seizure lasts for more than 5 minutes or recovery is prolonged or abnormal for the woman. The woman, or attendant, should be advised to call an ambulance to the nearest emergency department with an obstetric service.

Intrapartum care: Any special precautions?	Suitable for labour/birth in water (seizure free in pregnancy and 1 year before)	
Post natal contraceptive advice given:		Date

- Advise that enzyme inducing AED's interfere with hormonal contraception.
- Advise women on Lamotrigine that hormonal contraception may reduce their Lamotrigine levels, increasing their risk of seizures. It is also possible that Lamotrigine can reduce the effectiveness of hormonal contraception, therefore advise discussion with Obstetrician and Neurologist.
- Advise that hormonal contraception may reduce Lamotrigine levels, and Lamotrigine can reduce the effectiveness of hormonal contraception.
- Advise that the most effective contraceptives are long-acting progesterone only contraception (Mirena, implant), copper IUCD or barrier methods.

Schedule of ANC appointments:

1. Booking
2. 28 weeks
3. If further appointments required, indicate when:

Labour Management:

- Aim for spontaneous labour, provided no contra-indication to vaginal delivery
- Ensure all epilepsy medicines are taken at the usual time and in the current dose, even if nil by mouth
- Do not leave unattended. A family member/friend or a member of staff should be in the room at all times
- Ensure good hydration throughout labour. IV fluids should not be necessary if oral intake is good. Consider an anti-emetic if vomiting.
- Ensure good analgesia and encourage to sleep if able
- Pethidine is epileptogenic and should be avoided. Morphine sulphate can be used if an opiate is required. TENS, Entonox and epidural are other alternatives.
- If fits in labour and the seizure is typical of her normal activity, she has had normal blood pressure, with no proteinuria then this can be attributed to her epilepsy rather than pre-eclampsia. However if there is any doubt, or the fit is prolonged give magnesium sulphate as per PET protocol. See "The care of pregnant women with epilepsy" guideline
- Consider Clobazam 12 hourly in labour followed by 10 mg on for a week, reducing to 5mg for a further week and then stop. Clobazam is a benzodiazepine that is useful in managing epilepsy for short periods of increased stress and sleep deprivation. Small amounts will be present in breast milk, however breastfeeding is still encouraged. Reducing the dose for a week will minimise any possible withdrawal symptoms in the baby
- Recommend parenteral Vitamin K for the baby

Post natal general advice

- Advise reduction of seizure triggers
- Consider use of breast milk pumped during day to be used by partner/relative for night feeds.
- Recommend breastfeeding in a comfortable position on floor or in low chair
- Discuss safe practice when caring for baby, e.g., changing baby on floor/in cot, supervised bathing for both, avoid use of slings, avoid sleeping with the baby, use of car seat to carry baby around house
- Advise additional help at home initially after discharge
- Offer pre-pregnancy counselling for future

Appendix 2: Emergency Management of Convulsive Status Epilepticus in Adults

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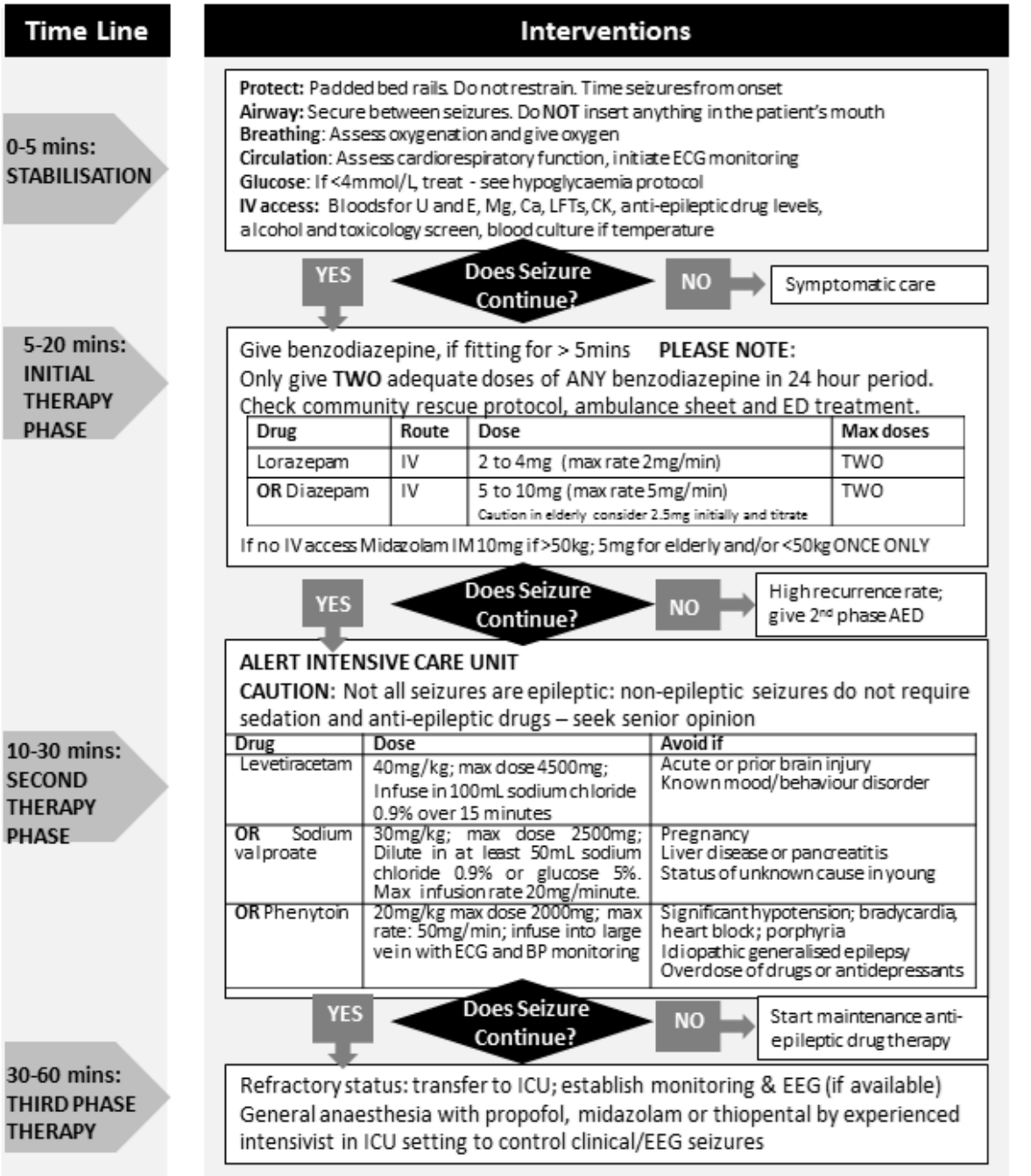

FOR ALL PATIENTS:

History: previous epilepsy, any anticonvulsant drugs, diary or wallet card or bracelet?

CT head: if no previous epilepsy, new focal neurology, any refractory case

Cause: if no known epilepsy look for stroke, traumatic brain injury, encephalitis ; in known epilepsy check drug changes/compliance, infection, electrolyte disturbance

Drugs: continue existing anti-epileptic drugs. Reinstate any recently withdrawn drugs

Start maintenance anti-epileptic drug therapy promptly in formulation that is available and suitable

Benzodiazepines are prescribed as STAT dose (NOT PRN) maximum two doses in 24 hours, 20 mins apart

Refer for neurology opinion

Available on the guidelines site at:
https://guidelines.fhft.nhs.uk/Neurology-Epilepsy-Emergency_Management_of_Convulsive_Status_Epilepticus_in_Adults

Full version control record

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3.0	August 2023	Sukhera Furness, Consultant Obstetrician and Gynaecologist	Final	Approved at Cross Site Obstetrics Clinical Governance meeting, 21.11.2023

Related Documents

None