Clinical Guidance

Management of Epilepsy in Pregnancy

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1.0 Introduction

Epilepsy is one of the commonest neurological conditions in pregnancy affecting 1 in 200 (0.5 - 1%) women. The outcomes in pregnancy for most Women with Epilepsy (WWE) are good, however they are at a tenfold increased risk of mortality in pregnancy compared to those without the condition. MBRRACE-UK continues to report maternal deaths were attributed to epilepsy, with a rise in Sudden Unexpected Death in Epilepsy (SUDEP).

The aim of this guideline is to ensure safe and effective care to women in South West London and Surrey Heartlands with epilepsy as part of the regional South West London and Surrey Heartlands (SWLaSH) maternal medicine network (MMN).

2.0 Scope

This guideline is aimed at obstetricians, GP's and midwives caring for women with Epilepsy in pregnancy.

Abbreviations:

WWE	Women with Epilepsy	NICU	Neonatal Intensive Care Unit
ASM	Anti-Seizure Medication	MMN	Maternal Medicine Network
MDT	Multi-disciplinary team	CNS	Clinical Nurse Specialist
SUDEP	Sudden unexpected death in epilepsy	ANC	Antenatal Clinic
MHRA	Medicines and Healthcare Regulatory Authority		

Preconception counselling should be done either by the maternal medicine team or by a neurologist with special interest in pregnancy
1. Optimise pharmacological treatment so WWE remain seizure free from preconception to postnatal period on the lowest effective dose, avoiding polypharmacy
2. Women who are not currently pursuing pregnancy but may do so in the future should be appropriately counselled about the teratogenic profile effects of ASMs. The MHRA Pregnancy Prevent programme for Valproate and Topiramate should be followed.
3. Reassure WWE that most have uncomplicated pregnancy and birth and give birth to healthy babies.
4. WWE have the same choices about mode of birth as any other woman (epilepsy alone is not an indication for CS)
5. Advise 5mg folic acid once daily to be started 3 months before trying to conceive.
6. WWE with poor seizure control or on valproate / topiramate should be advised to defer pregnancy, be on effective contraception and referred to specialist neurology.
7. 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.
8. Discuss safety aspects of epilepsy in pregnancy and birth and how to access appropriate pregnancy care. Risks are reduced by good seizure control and many ASMs are safe in pregnancy.
9. Advise that SUDEP (sudden death in epilepsy) is more common in pregnancy and that poorly controlled epilepsy is the main contributory factor.
10. Advise that driving (DVLA) may be impacted if she experiences a seizure, or doses of medication are changed

Antenatal Care

Documentation

- Clear, concise documentation in all maternity notes regarding place of delivery and clinical factors indicating a more intensive pathway/ escalation of care.

Booking

- Bookings to be done by maternal medicine midwife - patients to be seen by maternal medicine clinicians within 2 weeks.
- Urgent referral: in missed cases, urgent referral to maternal medicine team by community midwife – patients to be seen within 2 weeks.

First Visit (within maximum 2 weeks of patient presenting to maternity)

- Commence/continue 5mg folic acid throughout first trimester.
- Offer screening as per standard maternity pathway.
- Offer USS for dating and fetal anomaly scan and ensure sonographer is aware of any ASM medication.
- WWE on multiple ASMs, valproate, carbamazepine – refer for fetal ECHO.
- Advise delivery in a consultant led unit due to increased risk of seizures in labour and postpartum.
- Organise anaesthetic review by 36 weeks if seizures poorly controlled or change in seizure pattern.
- WWE at reasonable risk of seizures should be accommodated in an environment that allows for continuous observation by a carer, partner or nursing staff when in hospital.
- Review seizure triggers at each appointment.
- If admitted WWE should receive the same brand of ASM and not a generic substitution while in hospital
- There is insufficient evidence to recommend giving vitamin K to WWE to prevent postpartum haemorrhage.

Monitoring ASM serum levels

- No clear-cut relationship between serum levels of ASMs and seizure control in nonpregnant and pregnant WWE therefore routine monitoring of serum ASM levels in pregnancy is not recommended in national guidance at present.
- The network supports a shared decision to monitor serum levels in WWE on lamotrigine and levetiracetam – consider measurement pre-pregnancy, at booking and then at 28 and 34-36 weeks or every 4 weeks as part of the personalised plan of care.

  Indications for monitoring of ASM blood levels are:
  - Forms part of the obstetric / neurology MDT care plan
  - Increase in seizure activity.
  - Detection of non-compliance
  - Suspected toxicity
  - Adjustment of lamotrigine, levetiracetam or phenytoin dose
  - Changes to bio-availability/elimination/drug interactions
  - Organ failure or side effects

Planning delivery

- Timing/mode of birth should be guided by each individual case.
- Epilepsy is not an indication for induction of labour or caesarean section.
- A care plan should be documented by 36 weeks in women where there are special considerations likely to affect birth/postpartum management.

- These include:
    - Anaesthetic considerations
    - Reduction of seizure related risk factors
    - Ensuring ASM are prescribed in labour (even if alternative routes are required)
    - A plan for medications in the immediate postnatal period

Intrapartum care

- The general risk of an intrapartum seizure is low (3.5%), and women should be provided with an individualised plan of care for birth.
- WWE should not be left unattended during labour and 24 hours postpartum.
- Advise delivery in consultant-led unit and not for a water birth.
- WWE who wishes to birth in a midwifery led unit, a home birth or a water birth should follow a 'Birth outside guidelines' pathway. They should be supported with a personalised plan of care which includes input from the maternal medicine team and her neurologist.
- Epilepsy in itself is not an indication for continuous fetal monitoring (CEFM), use CEFM for the usual obstetric indications.
- Continue ASMs during labour (use parenteral route if needed)
- Manage nausea and vomiting with antiemetics
- Consider clobazam 10-20mg orally 12 hourly in labour in women who are felt to be at increased risk of an intrapartum seizure to reduce the risk.

Seizure triggers should be minimised where possible by:

- Avoiding dehydration
- Avoiding stress
- Avoiding sleep deprivation
- Providing adequate analgesia – TENS, Entonox, consider early epidural.
- Avoid hyperventilating with Entonox, particularly if absence seizures.
- Avoid Pethidine as this decreases the seizure threshold, diamorphine can be used as an alternative.

Seizure in labour

Seizures in labour should be treated promptly to reduce the risk of maternal and fetal hypoxia and fetal acidosis.

- Call for help.
- Maternal airway and oxygenation maintained.
- Left lateral tilt.
- Record time of onset
- If not self-terminating within a few minutes:
- Follow individual care plan or treat with benzodiazepines.
- Benzodiazepines:
    - If IV access - IV lorazepam 0.1mg/Kg (usually a 4 mg bolus)
    - If no IV access - Midazolam 10mg buccal (10mg in 1ml or 10mg in 2ml)
- Follow status epilepticus guideline if seizure lasts longer than 5 minutes.
- If there is doubt whether a seizure if due to epilepsy or eclampsia, then in addition to the above follow the trust guideline on eclampsia.
- If persistent uterine hypertonus then consider tocolytic
- After mother is stabilised continuous CTG should be commenced. If FH does not recover after 5 minutes or seizures are recurrent then expedite delivery
- Differentials of a seizure in pregnancy include eclampsia, drug toxicity, subarachnoid haemorrhage, cerebral sinus thrombosis, cerebral vasculitis, TTP, hypoglycaemia, amniotic fluid embolism, water intoxication/hyponatraemia, vagal episode/faint.

Postnatal Care

Mother

- Higher risk of seizures in immediate postpartum period
- Can be due to triggers (sleep deprivation, stress, altered ASMs) therefore should be well supported to ensure they are minimised.
- All women with epilepsy should be monitored for 24 hours after delivery.
- Any woman who had a seizure during labour should be observed closely for the next 72 hours. Postnatal WWE at reasonable risk of seizures should be accommodated in single rooms only when there is provision for continuous observation by a carer, partner or nursing staff.
- Continue antenatal ASM dosage for the first 24 hours post-delivery then reduce gradually to pre-pregnancy dose over the next 3-4 weeks to avoid toxicity – make plan in the antenatal period.
- Escalate any concerns re toxicity e.g. significant drowsiness, dizziness, slurred speech, nausea.
- As per the recent MBRRACE-UK prompt postnatal review is required to ensure ASM doses are appropriately adjusted (see appendix 3)
- Reiterate safety advice including avoiding co-sleeping, minimising excessive tiredness as well as practical measures including placing the baby in a cot/playpen/ car seat if mother feels unwell, feeding/changing/bathing baby on the floor and not bathing baby alone. Signpost to resources such as Labour, birth and after the baby is born - Epilepsy Action
- Ensure the same brand of ASM is provided at discharge.
- Consider need for enhanced postnatal care, social support, perinatal mental health team input.

Breastfeeding

- WWE who are taking ASMs should be encouraged to breastfeed as concentration of ASMs in breastmilk is minimal (see appendix 2).
- Prescribers should review individual drug advice in the BNF.

Baby

- All babies born to WWE taking hepatic enzyme-inducing ASMs should be offered 1 mg of intramuscular vitamin K to prevent haemorrhagic disease of the newborn
- Neonatal / paediatric review if baby drowsy or poor feeding
- WWE on phenobarbitone – baby at higher risk of withdrawal and fits

Contraception

- WWE should be informed about the risks of future pregnancies and the importance of preconception care when planning future pregnancies.
- WWE should also be advised on how to access the services rapidly if they do become pregnant again.
- WWE should be informed that ASMs can reduce the efficacy of hormonal contraceptives resulting in contraceptive failure.
- A summary of interactions is provided in Appendix C. Further information can be found via the FSRH. FSRH CEU Guidance: Drug Interactions with Hormonal Contraception (May 2022) - Faculty of Sexual and Reproductive Healthcare

Status Epilepticus

Convulsive status epilepticus is a medical emergency that needs immediate treatment with antiseizure medication. Status is defined as:

- Seizure lasting>5mins or recurrent seizures with no recovery = medical emergency
- Call for help (labour ward co-ordinator, obstetric registrar, anaesthetist, ODP)
- Ensure consultant obstetrician and anaesthetist are informed.
- General medical team can be contacted for advice and support.
- Adopt ABCDE approach and consider other causes of seizures.

- Secure the airway.
- Obtain IV access if not already done so.
- Give Benzodiazepines – IV lorazepam or Buccal midazolam.
- If seizures are not terminated 20 minutes after onset, despite administration of two doses of benzodiazepines, second line treatment should be administered - e.g. levetiracetam or alternative in line with local Trust guideline.
    - 1st line IV lorazepam or buccal midazolam
    - 2nd line levetiracetam (off label use but recommended by NICE)
- Once seizure control secured commence cardiotocography (CTG) monitoring of the fetus if suspected or known to be above local gestation threshold

SUDEP

- SUDEP is defined 'sudden, unexpected, witnessed or unwitnessed, non-traumatic and non-drowning death in patients with epilepsy with or without evidence for a seizure and excluding documented status epilepticus, in which postmortem examination does not reveal a toxicologic or anatomic cause for death'.
- SUDEP is more common in pregnancy and occurs more frequently in chronic epileptics with poorly controlled seizures. Individuals with unwitnessed seizures are at high risk of SUDEP, with nocturnal seizures being an independent risk factor. The need for guidance on SUDEP risk assessment and minimisation has been highlighted.
- SUDEP Action have produced tools which can be used to minimise risk including the EpSMON app to help monitor their epilepsy, risks and wellbeing between appointments (see below). SWLaSH recommends the use of the risk assessment (Appendix B) which is based on SUDEP seizure safety checklist tool. This is an online tool which Trusts can register request for use: available at SUDEP and Seizure Safety Checklist | SUDEP Action.
- The severity of someone's epilepsy is the most reliable risk factor. Generalised tonic clonic seizures make a person more likely to experience SUDEP and the risk increases with the number of convulsive seizures per year. It should be noted, however, that there are deaths every year in people who suffer infrequent seizures too. The table below outlines known risks and potential strategies to minimise these.

SUDEP Risk reduction

Recommendations to reduce the risk of SUDEP involve optimization of seizure control and being aware of the potential consequence of nocturnal seizures.

- Structured assessment of risk early in pregnancy and in response to a deterioration in symptoms
- Prompt referral of people with poor control or nocturnal seizures or deteriorating seizures to a specialist epilepsy team
- Ensure/encourage adherence with ASMs.
- Talk to patients and their family members about SUDEP and ways of reducing risk.
- First aid training for family members
- Avoid or minimise sleeping alone.
- Encourage and support use of the EpsMon app EpSMon: Epilepsy Self-Monitoring | SUDEP Action
- Not to be alone or unattended whilst in hospital including after birth

Risk Factors	Actions to reduce risk
Seizure related factors	
Epilepsy onset <16 years of age Generalised tonic-clinic seizures (GTCS) Previous Status epilepticus (SE) and prolonged seizures Nocturnal seizures Recent active seizures or injury	Identify and escalate risk -refer. Educate woman and her family. EpSMON self-monitoring App
Treatment related factors	
Self-initiated stop of medication Poor compliance with medication and services Medication change Ineffective treatment	Address concerns and side effects. Manage N+V. Provide education around importance of compliance and engaging with services for regular reviews. Address barriers to care – transport / finances / timing and location
Individual and social factors	
Living/sleeping alone Domestic abuse Alcohol and substance misuse Mental health Learning disability Pregnancy triggers – stress, sleep deprivation, dehydration	Multi-agency collaboration Discussion with GP/referral to community service / perinatal mental health Social services / adult safeguarding may be required. Signpost accommodation and financial support. Support to minimise seizure triggers and education for patient and family

SWL&SH MMN Care Pathway for Epilepsy	
At any time during pregnancy or postnatal	Poor control of epilepsy or deterioration or nocturnal seizures (red flag) • Urgent escalation to the specialist epilepsy team • Educate woman and her family -minimise risks. • ASMs - check serum level, review dose and discuss compliance. Valproate or Topiramate <u>without</u> plan from Epilepsy Consultant – urgent Obs and neuro referral (see MHRA Pregnancy Prevent Programme)
Preconception	See Preconception counselling section and Appendix A
Gestation	
<10 weeks Or as soon after referral as possible	Arrange booking – ideally maternal medicine midwife ASAP. Consider contact phone call to establish details epilepsy history. At Booking: • Review Preconception counselling. • ASM adherence – manage nausea and vomiting. • Seizure safety • Family seizure first aid • Care pathway and contact numbers. • 5mg Folic acid to 12 weeks* (continue if Valproate or Carbamazepine)

	**Local guidance may vary in light of emerging evidence around folic acid* • Epilepsy and pregnancy resource information • Epilepsy / SUDEP risk assessment (Appendix B) • Advise about the EpSMon app to help monitor their epilepsy, risks and wellbeing between appointments www.sudep.org/epsmonv. • If not engaged with neurology care or high-risk features - urgent MDT referral to Maternal medicine and Neurology WWE should see a member of the epilepsy care team within 2 weeks. *WWE who are seizure free for 10 years and unmedicated for 5 years can be managed as low risk and follow their normal maternity pathway.*
11-13 weeks	First trimester scan and CBT screening
By 16 weeks	Combined clinic / Obstetric Review ANC • Review epilepsy history and ASMs. • Address any concerns re safety of medication and compliance. • Provide written information on ASMs (see UKTIS BUMPS) • Assess risk of SUDEP and counsel • Had pre-pregnancy counselling (PPC) - ensure understanding. • No PPC counselling - cover all aspects (detailed in appendix A) • Signpost to UK Epilepsy and pregnancy Registry. www.epilepsyandpregnancy.co.uk • Agree personalised plan of care with woman.
16-18 weeks	*WWE on Valproate / Carbamazepine or multiple ASMs* *Fetal Cardiology* (ECHO) and early anomaly scan* **In line with Regional Royal Brompton fetal cardiology criteria*
20-22 weeks	Routine Anomaly scan
24 to 36 weeks	Personalised plan of care As a minimum: • NICE guideline schedule of midwifery antenatal reviews • Additional obstetric ANC appointments if complex epilepsy or other co-morbidities • Combined obstetric and neurology review – by joint clinic / Midwifery and CNS clinic or joint MDT. • On ASMs Fetal growth surveillance by ultrasound scans mid and late third trimester (e.g. 28 and 36wks or 30 and 37 wks.)
34 to 36 weeks	Birth planning: Maternal medicine midwife with epilepsy CNS and/ or Obstetric ANC / neurology (depending on local model of care) • Strategies to reduce triggers (sleep deprivation and stress) • Pain relief in labour • Importance of taking own ASMs into hospital • Antenatal breastmilk collection • Infant feeding wishes - Strategies to support breastfeeding and manage sleep deprivation. • Newborn care – seizure safety and avoid co-sleeping. • Vit K baby discussion particularly if on hepatic enzyme inducing ASMs. • Not to be alone – if single room supervision by birth partner
By 36 weeks	Anaesthetist review - WWE on ASMs or complex /changed seizure pattern

36-37weeks	Obstetric ANC with neuro input or specialist midwifery / CNS appt • Agree final birth plan and document clearly any specific individual considerations e.g. clobazam. • Ensure postnatal ASM reduction plan documented if dose increased in pregnancy
38 weeks	Midwifery antenatal check
40-41 weeks	Routine postdates plan unless other indication for earlier birth
Intrapartum	Birthplace – recommend Consultant led unit (delivery suite) Not to be left unattended during labour and 24 hours postpartum Continuous fetal monitoring (CEFM) not routinely indicated, use for the usual indications. Ensure safe environment – remove obstacles, bed rails etc. Seizure prevention: • Continue ASMs during labour. • Prescribe ASMs promptly and administer on time. • Ideally use woman's own ASMs (contact on call pharmacy if needed) • Consider antiemetics and IV ASMs if vomiting. • Administer clobazam if part of the birth plan. Minimise seizure triggers: • Minimise sleep deprivation, dehydration and stress. • Adequate analgesia – TENS, Entonox, consider early epidural. • Avoid Pethidine (diamorphine can be used as an alternative) Seizure in labour – call for help, ABC approach, protect airway, left lateral tilt, follow 'seizure in labour' advice and treat promptly to reduce risk to mother and baby. If lasting longer than 5minutes – follow status epilepticus guideline.
Postnatal Mother	Following birth: • Monitor for 24 hours after delivery (72 hrs if seizure in labour) • Optimise sleep and rest. • Not to be left alone - single rooms only if continuous observation (next of kin / birth partner / carer) Medication: • Continue ASMs • Follow plan for reducing ASM dose over time (if not clear liase with neurology) • Escalate any concerns re toxicity - significant drowsiness, dizziness, slurred speech, nausea. • Ensure the same brand of ASM is provided at discharge. Education and ongoing support: • Reiterate safety advice - avoid co-sleeping, minimise excessive tiredness, not bathing baby alone, change baby on the floor. • Signpost to resources such as Labour, birth and after the baby is born - Epilepsy Action • Consider need for enhanced postnatal care, social support, perinatal mental health team input. • Ensure neurology follow up in place.
Baby	Support breastfeeding (unless specific care plan advises against) Advise 1 mg IM vitamin K (particularly if mother taking hepatic enzyme-inducing ASMs) Neonatal / paediatric review if baby drowsy or poor feeding

Appendix A Pre-pregnancy Care and Counselling

Points for Discussion	
Pregnancy outcomes	Reassure WWE that most have uncomplicated pregnancy and birth and give birth to healthy babies. WWE have the same choices about mode of birth as any other woman (epilepsy alone is not an indication for CS)
Resources for WWE	RCOG Patient Information Leaflet and Epilepsy Action
Folic acid	Advise 5mg folic acid once daily to be started 3 months before trying to conceive
Neurology care	Arrange neurology review if not already under active management of a neurologist
Medication ASMs	Adopt a shared decision-making approach – explain risks and benefits of medication and non-adherence. Ensure optimal seizure control on lowest effective dose working in partnership with the neurology team. Ideally – monotherapy with either lamotrigine or levatericatam
Valproate & Topiramate	WWE on Sodium Valproate or Topiramate **must** have a neurology review and switch to alternative ASMs if possible. National Pregnancy Prevention Programme is in place for women on valproate AND topiramate. Follow MHRA guidance. For some women, sodium valproate or topiramate may be the only effective ASM. *See Appendix E for links to patient guides*
Poor control	WWE with poor seizure control or on valproate / topiramate should be advised to defer pregnancy, be on effective contraception and referred to specialist neurology
Congenital malformations	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 risk in Women on Sodium Valproate, Topiramate or polypharmacy)
Good seizure control	Discuss safety aspects of epilepsy in pregnancy and birth and how to access appropriate pregnancy care. Risks are reduced by good seizure control and many ASMs are safe in pregnancy. Advise that SUDEP (sudden death in epilepsy) is more common in pregnancy and that poorly controlled epilepsy is the main contributory factor. Advise that driving (DVLA) may be impacted if she experiences a seizure, or doses of medication are changed.
Will I pass on epilepsy?	Consider genetic counselling if one partner has idiopathic generalised epilepsy (IGE) and a positive family history of epilepsy. Risk to child: 3% if one parent has focal seizures, 5-20% one first degree relative affected with IGE, 25% two first degree relatives affected with IGE
Pathway of care	Outline local team and how to access maternity care. Share maternal medicine midwifery contact details if appropriate
Optimising health	General preconception advice including smoking cessation, stopping/reducing alcohol intake and optimising BMI if overweight. Consider need for mental health or social support and signpost services

Appendix B Epilepsy / SUDEP Risk assessment

Template for risk assessment.
Clinicians can also register to use the SUDEP action safety checklist [SUDEP and Seizure Safety Checklist | SUDEP Action]

Epilepsy/Seizure/SUDEP Risk Assessment

Seizures in last 12 months	Yes/No
Anti-Epilepsy drugs stopped in the last year without medical advice	Yes/No
Anti-Epilepsy drugs doses self-changed	Yes/No
Seizures never controlled with epilepsy medicines	Yes/No
History of status epilepticus/prolonged seizures	Yes/No
If ticked yes – urgent liaison with Maternal Medicine Obstetricians and Epilepsy care provider	
History of night time (tonic clonic) seizures	Yes/No
Focal epilepsy (with or without bi-lateral tonic clonic seizures)	Yes/No
More than one anti epilepsy drug is prescribed	Yes/No
Active epilepsy during previous pregnancy	Yes/No
Women with limited English language	Yes/No
Diagnosis is uncertain	Yes/No
History of substance misuse (including alcohol)	Yes/No
History of brain surgery, lesion, stroke or head injury	Yes/No
Learning/intellectual disability	Yes/No
History of non-epileptic attack disorder	Yes/No
Complex physical, mental or social co-morbidities	Yes/No
Known epilepsy risk factors – enhanced collaborative MDT care	

Appendix C SUDEP risk reduction

Risk Factors	Actions to reduce risk
Seizure related factors	
Epilepsy onset <16 years of age Generalised tonic-clinic seizures (GTCS) Previous Status epilepticus (SE) and prolonged seizures Nocturnal seizures Recent active seizures or injury	Identify and escalate risk -refer. Educate woman and her family. EpSMON self-monitoring App
Treatment related factors	
Self-initiated stop of medication Poor compliance with medication and services Medication change Ineffective treatment	Address concerns and side effects. Manage N+V. Provide education around importance of compliance and engaging with services for regular reviews. Address barriers to care – transport / finances / timing and location
Individual and social factors	
Living/sleeping alone Domestic abuse Alcohol and substance misuse Mental health Learning disability Pregnancy triggers – stress, sleep deprivation, dehydration	Multi-agency collaboration Discussion with GP/referral to community service / perinatal mental health Social services / adult safeguarding may be required. Signpost accommodation and financial support. Support to minimise seizure triggers and education for patient and family

Appendix D Clinical presentation of seizures

Clinical presentation of seizures and their effect on the mother and baby		
Common types of seizures	Presentation	Effects on mother and baby
Tonic-clonic seizures	Sudden impaired consciousness, muscle stiffening and rhythmic muscle contractions followed by postictal phase Sudden loss of consciousness, uncontrolled fall, without warning.	Associated with variable period of fetal hypoxia. Highest risk of SUDEP
Focal seizures	Symptoms are variable depending, depending on area of the brain affected. The attacks are recognisable and stereotypical on a typical individual. May impair consciousness. Impairment of consciousness increases risk of injury (fracture, burns). Can have "epileptic aura" while remaining conscious.	Can be associated with a variable period of hypoxia and risk of SUDEP
Juvenile myoclonic epilepsy (JME)	Myoclonic jerks (sudden unpredictable movements) often precede a generalised tonic-clonic convulsion. Occurs more frequently with sleep deprivation.	Sudden jerky movements may lead to falls or to dropping of objects including the baby
Absence seizures	Generalised seizures that consist of brief blank spells associated with unresponsiveness, followed by rapid recovery.	Safety impact of brief loss of awareness of surroundings (like a burning flame). Worsening absence seizures places the women at high risk of tonic-clonic seizures.
Note these are clinical descriptors – seizure patterns can vary. *The ILAE defines a seizure type as 'a useful grouping of seizure characteristics for purposes of communication in clinical care, teaching, and research' see* **Operational Classification of Seizure Types (2017) // International League Against Epilepsy (ilae.org)**		

Appendix E Resources for Women

Women with Epilepsy preconception and pregnancy advice - Pregnancy toolkit

www.epilepsyandpregnancy.co.uk

Epilepsy in pregnancy | RCOG

EpSMon: Epilepsy Self-Monitoring | SUDEP Action

National Pregnancy Prevention Programme:

Topiramate Patient Guide Document (medicines.org.uk)

Valproate Patient Guide Medicines and Healthcare products Regulatory Agency (filecamp.com)

Appendix F Contraception and ASMs

See FSRH for guidance [FSRH CEU Guidance: Drug Interactions with Hormonal Contraception (May 2022) - Faculty of Sexual and Reproductive Healthcare]

Enzyme inducing ASMs: carbamazepine, eslicarbazepine, oxcarbazepine, phenobarbital, phenytoin, primidone, rufinamide, topiramate
Non enzyme inducing ASMs. sodium valproate, levetiracetam, gabapentin, vigabatrin, tiagabine, zonisamide, gabapentin and pregabalin NB LTG non ASM but reported possible interactions with POP and COCP
Teratogenic ASMs and Pregnancy Prevention Valproate – follow the National Prevent Programme [Valproate use by women and girls - GOV.UK (www.gov.uk)] Topiramate – FSRH advise that 'use of the copper IUD, a levonorgestrel-releasing IUS, or depot medroxyprogesterone acetate PLUS condoms is recommended.'

Type of contraception	Enzyme inducing ASMs	Non-enzyme inducing ASM	Lamotrigine
Combined contraceptive pill (COCP)	Not advised – recommend an alternative method	No clinical interaction	CAUTION – follow FSRH guidance. Potential interaction Risk of reduced seizure control whilst taking COCP and for toxicity during pill free week COCP may be less effective
Progesterone only pill (POP)	Not advised – recommend an alternative method	No clinical interaction	CAUTION – follow FSRH guidance. Potential interaction May increase lamotrigine levels – monitor for toxicity. POP may be less effective
Progesterone subdermal implant	Not advised – recommend an alternative method	No clinical interaction	No clinical interaction
DMPA (depo provera)	No clinical interaction	No clinical interaction	No clinical interaction
LNG-IUS (Mirena)	No clinical interaction	No clinical interaction	No clinical interaction
CU-IUD (Copper coil)	No clinical interaction	No clinical interaction	No clinical interaction

Postnatal contraception

Sexual health - ICS (surreyheartlands.org)
CNWL provide sexual health and contraception for Surrey Heartlands:
STIs and contraception | CNWL Sexual Health Services

- Clinics are available at the following locations (see website for booking details)
- Buryfields Clinic (Buryfields Clinic, Second floor, 61 Lawn Road, Guildford, GU2 4AX)
- Earnsdale Clinic (Earnsdale Clinic, 2 Whitepost Hill, Redhill, RH1 6BD)
- Woking Clinic (Woking Hospital, Heathside Road, Woking, GU22 7HS)
- Epsom Young People's Clinic (Nescot North East Surrey College of Technology, Reigate Road, Ewell, Epsom, Surrey KT17 3DS)
- Weybridge Young People's Clinic (Brooklands College, Heath Road, Weybridge, Surrey, KT13 8TT)
  Guildford Young People's Clinic for 13-17 years old (Buryfields Clinic, Second floor, 61 Lawn Road, Guildford, GU2 4AX) commencing 20 June 2023.
- Wolverton Centre, Kingston Hospital

  https://www.sexualhealthkingston.co.uk/

  In addition, women can access online contraception:

  At Home Testing Order Forms | CNWL Sexual Health Services

Some hospitals are in the process of developing formal pathways for postnatal contraception after birth and prior to discharge.

References

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- FSRH guidance FSRH CEU Guidance: Drug Interactions with Hormonal Contraception (May 2022) - Faculty of Sexual and Reproductive Healthcare
- MHRA guidance Valproate safety measures - GOV.UK (www.gov.uk)
- MHRA guidance Topiramate (Topamax): introduction of new safety measures, including a Pregnancy Prevention Programme - GOV.UK (www.gov.uk)