Scope:

This guideline is aimed at all Health Care Professionals involved in the care of women with Epilepsy (pre-conceptual care / pregnancy / postnatal care).

Legal Liability (standard UHL statement):

Guidelines issued and approved by the Trust are considered to represent best practice. Staff may only exceptionally depart from any relevant Trust guidelines providing always that such departure is confined to the specific needs of individual circumstances. In healthcare delivery such departure shall only be undertaken where, in the judgement of the responsible health professional it is fully appropriate and justifiable – such decision to be fully recorded in the patient’s notes.

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Epilepsy is a serious medical condition which can be life-threatening when not managed appropriately. All women with epilepsy should be cared for antenatally by doctors competent in the management of epilepsy. They should advise on the choice and dose of Antiepilepsy Drugs (AEDs), taking into consideration the risk to the fetus and maternal seizure control.

Preconceptual Care

- All women with epilepsy should be advised to take folic acid 5mg daily for at least three months preconceptually and to continue the intake until at least the end of the first trimester to reduce the incidence of major congenital malformation.1

1. Reference number or source should be provided here.
• The patient should be on the lowest effective dose of the most appropriate medication. In women taking Sodium Valproate or other AED polytherapy, there should be a detailed discussion on the risks and benefits of continuing or changing the AED prior to planning pregnancy. The aim should be to avoid sodium valproate and AED polytherapy where possible. However, if by doing so the risk of maternal seizures is deemed to be too high, they may need to continue on the same.

• Changes to medications should be made based on advice from an epilepsy specialist and after careful consideration of the potential risks and benefits.

• The risk of major congenital malformation to the fetus is dependent on the type, number and dose of AEDs. Lamotrigine and carbamezepine monotherapy at lower doses have the least risk of major congenital malformation in the offspring. The tables below show the risk of major malformations with different medications.

<table>
<thead>
<tr>
<th>Epilepsy medicine combination</th>
<th>Approximate risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>any combination without sodium valproate</td>
<td>4 in 100</td>
</tr>
<tr>
<td>sodium valproate with any other epilepsy medicine</td>
<td>9 in 100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Epilepsy medicine</th>
<th>Daily dose</th>
<th>Approximate risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>carbamazepine</td>
<td>Any</td>
<td>2 to 3 in 100</td>
</tr>
<tr>
<td>lamotrigine</td>
<td>Any</td>
<td>2 to 3 in 100</td>
</tr>
<tr>
<td>levetiracetam</td>
<td>Any</td>
<td>2 in 100</td>
</tr>
<tr>
<td>topiramate</td>
<td>Any</td>
<td>4 - 5 in 100</td>
</tr>
<tr>
<td>sodium valproate</td>
<td>below 1,000 mg</td>
<td>6 in 100</td>
</tr>
<tr>
<td>sodium valproate</td>
<td>above 1,000 mg</td>
<td>10 in 100</td>
</tr>
</tbody>
</table>

• Patients should be provided with written information on pregnancy with epilepsy.

Antenatal

• Those women not already taking folic acid 5mg/day should be prescribed it for the remainder of the first trimester.

• Shared care is appropriate for the vast majority of women with epilepsy. They should be referred to the Maternal Medicine antenatal clinic, where
they will be under the care of a consultant with a specialist interest in Maternal Medicine.

- All women with poorly controlled epilepsy/ polytherapy should be managed jointly by the obstetrician and neurologist

- Women on Sodium Valproate should be offered an additional ultrasound scan at 16 weeks to exclude neural tube defects.

- All women with epilepsy should be encouraged to have a detailed ultrasound scan performed between 18\+0 and 20\+6 weeks, in line with the National Health Service Fetal Anomaly screening programme.

- Women exposed to AED’s should have serial growth scans for detection of small for gestational age babies.

- Measurement of plasma drug levels for most anti-convulsants during pregnancy is rarely indicated, other than to check compliance. It is usually more appropriate to adjust dosages on clinical grounds, after compliance has been confirmed\(^5,6\). Adjustments to regimes without confirming compliance may result in toxicity. There is no clear-cut relationship between plasma anticonvulsant levels and seizure control for the majority of anti-convulsants. The exception to this would seem to be lamotrigine. Many women require increased dosages of this agent during pregnancy, and in the absence of pro-dromal symptoms it may be appropriate to monitor lamotrigine levels on a 4 weekly basis and adjust dosages accordingly.

- There is insufficient evidence to recommend routine maternal use of oral Vitamin K to prevent haemorrhagic disease of the newborn\(^7,8\) or to prevent postpartum haemorrhage.

- There is no evidence to support the use of a higher dose of dexamethasone in women using enzyme inducing agents.

- All women should be encouraged to notify their pregnancy or allow their obstetrician notify their pregnancy with the UK Epilepsy and Pregnancy register.\(^9\)

- Women should be encouraged to comply with their medications throughout pregnancy, as this will be the safest option for both them and the fetus overall. If they have difficulty due to nausea or vomiting, or any other reason, they should inform the team caring for them as a matter of urgency.
Labour and Delivery

- The overall risk of seizures during labour remains low however it is recommended women with epilepsy deliver on a labour ward in a consultant-led maternity unit. Delivery within the birth centre may be considered for women whose seizures are well-controlled providing that full resuscitation facilities are available.

- Water birth should only be considered antenatally if the woman is not taking AEDs, has been seizure free for a long period of time and after discussion with an epilepsy specialist.

- The woman’s normal anticonvulsant regime should be administered in order to reduce the risk of seizures during labour. If not tolerated orally, AEDs may be given parenterally.

- Seizures in labour should be terminated as soon as possible. Left lateral tilt should be established alongside maintenance of the airway and oxygenation at all times.

- Benzodiazepines are the drug of choice in status epilepticus.
  
  - For patients with IV access, Lorazepam IV 0.1mg/kg (usually 4mg bolus, with a further dose after 10-20 minutes) is preferred. Diazepam 5-10mg slowly IV is an alternative.
  
  - If there is no IV access. Diazepam 10-20mg PR repeated once 15 minutes later if continued risk of status epilepticus. Midazolam 10mg buccal is also suitable.

- Repeated seizures during labour put the fetus at risk of hypoxia and caesarean section should be considered to expedite the delivery of the fetus.

- If the woman remains seizure-free during labour, then she should be managed as any other labouring woman. However care should be taken to avoid exhaustion and dehydration, as both of these can trigger seizures in some women.

- Pain relief should be prioritised in women with epilepsy.
  
  - TENS, Entonox and regional analgesia are all safe. TENS, Entonox and regional analgesia are all safe. TENS, Entonox and regional analgesia are all safe.
  
  - Pethidine should be avoided, and diamorphine should be used in preference.

- Intermittent auscultation is appropriate for the majority of these patients. Continuous fetal monitoring is recommended in women at high risk of a seizure in labour (for example someone who has had seizures antenatally) and also any patient who has had an intrapartum seizure.
The babies of women treated with enzyme inducing anticonvulsants should receive Vitamin K 1mg intramuscularly at birth.

**Postnatal Care**

- Breast-feeding should be encouraged for all women with epilepsy. The babies should be monitored for adverse effects, withdrawal symptoms and signs of toxicity – particularly if preterm.

- Women with epilepsy should be given appropriate advice and support regarding suitable settings for feeding and other aspects of infant care in order to minimise danger to the infant should a maternal seizure occur.

- Post-partum care should include review of anticonvulsant regimen within 10 days of delivery if the dose was changed in pregnancy. This is to avoid toxicity.

- The women should also be given advice about appropriate contraception, and preconceptional care for the next pregnancy.
  - Copper IUDs, the levonorgestrel-releasing IUS and medroxyprogesterone acetate injections should be promoted as reliable methods of contraception that are not affected by enzyme inducing AEDs.
  - Women taking enzyme inducing AEDs should be informed that a copper IUD is the preferred choice for emergency contraception.

- Healthcare workers should be aware that these patients are at a much higher risk of depressive disorders in the puerperium. The patients should also be made aware of symptoms to look for and report.

**Bibliography and References**


9. UK Epilepsy and Pregnancy Register [http://www.epilepsyandpregnancy.co.uk/]


