SUMMARY OF PRODUCT CHARACTERISTICS

1. Name of the medicinal product
   Epilim Intravenous

2. Qualitative and quantitative composition
   Each vial contains 400mg of Sodium Valproate freeze-dried powder.

3. Pharmaceutical form
   Powder for Injection or Intravenous Infusions

4. Clinical particulars

4.1 Therapeutic indications
   The treatment of epileptic patients who would normally be maintained on oral sodium valproate, and for whom oral therapy is temporarily not possible.

4.2 Posology and method of administration
   Epilim Intravenous may be given by direct slow intravenous injection or by infusion using a separate intravenous line in normal saline, dextrose 5%, or dextrose saline.

   Dosage
   Daily dosage requirements vary according to age and body weight.

   To reconstitute, inject the solvent provided (4ml) into the vial, allow to dissolve and extract the appropriate dose. Due to displacement of solvent by sodium valproate the concentration of reconstituted sodium valproate is 95mg/ml.

   Each vial of Epilim Intravenous is for single dose injection only. It should be reconstituted immediately prior to use and infusion solutions containing it used within 24 hours. Any unused portion should be discarded. (See section 6.6).

   Epilim Intravenous should not be administered via the same IV line as other IV additives. The intravenous solution is suitable for infusion by PVC, polyethylene or glass containers.

   Patients already satisfactorily treated with Epilim may be continued at their current dosage using continuous or repeated infusion. Other patients may be given a slow intravenous injection over 3-5 minutes, usually 400-800mg depending on body weight (up to 10mg/kg) followed by continuous or repeated infusion up to a maximum of 2500mg/day.

   Epilim Intravenous should be replaced by oral Epilim therapy as soon as practicable.
Use with children
Daily requirement for children is usually in the range 20-30mg/kg/day and method of administration is as above. Where adequate control is not achieved within this range the dose may be increased up to 40mg/kg/day but only in patients in whom plasma valproic acid levels can be monitored. Above 40mg/kg/day clinical chemistry and haematological parameters should be monitored.

Use in the elderly
Although the pharmacokinetics of Epilim are modified in the elderly, they have limited clinical significance and dosage should be determined by seizure control. The volume of distribution is increased in the elderly and because of decreased binding to serum albumin, the proportion of free drug is increased. This will affect the clinical interpretation of plasma valproic acid levels.

In patients with renal insufficiency
It may be necessary to decrease the dosage. Dosage should be adjusted according to clinical monitoring since monitoring of plasma concentrations may be misleading (see section 5.2 Pharmacokinetic Properties).

In patients with hepatic insufficiency
Salicylates should not be used concomitantly with Epilim since they employ the same metabolic pathway (see also sections 4.4 Special Warnings and Precautions for Use and 4.8 Undesirable Effects).

Liver dysfunction, including hepatic failure resulting in fatalities, has occurred in patients whose treatment included valproic acid (see sections 4.3 Containdications and 4.4 Special Warnings and Precautions for Use).

Salicylates should not be used in children under 16 years (see aspirin/salicylate product information on Reye’s syndrome). In addition in conjunction with Epilim, concomitant use in children under 3 years can increase the risk of liver toxicity (see section 4.4.1 Special warnings).

Combined Therapy
When starting Epilim in patients already on other anticonvulsants, these should be tapered slowly: initiation of Epilim therapy should then be gradual, with target dose being reached after about 2 weeks. In certain cases it may be necessary to raise the dose by 5 to 10mg/kg/day when used in combination with anticonvulsants which induce liver enzyme activity, e.g. phenytoin, phenobarbital and carbamazepine. Once known enzyme inducers have been withdrawn it may be possible to maintain seizure control on a reduced dose of Epilim. When barbiturates are being administered concomitantly and particularly if sedation is observed (particularly in children) the dosage of barbiturate should be reduced.

NB: In children requiring doses higher than 40mg/kg/day clinical chemistry and haematological parameters should be monitored.

Optimum dosage is mainly determined by seizure control and routine measurement of plasma levels is unnecessary. However, a method for measurement of plasma levels is available and may be helpful where there is poor control or side effects are suspected (see section 5.2 Pharmacokinetic Properties).
4.3 Contra-indications

- Active liver disease
- Personal or family history of severe hepatic dysfunction, especially drug related
- Hypersensitivity to sodium valproate
- Porphyria

4.4 Special warnings and precautions for use

Although there is no specific evidence of sudden recurrence of underlying symptoms following withdrawal of valproate, discontinuation should normally only be done under the supervision of a specialist in a gradual manner. This is due to the possibility of sudden alterations in plasma concentrations giving rise to a recurrence of symptoms. NICE has advised that generic switching of valproate preparations is not normally recommended due to the clinical implications of possible variations in plasma concentrations.

4.4.1 Special warnings

Liver dysfunction:

Conditions of occurrence:
Severe liver damage, including hepatic failure sometimes resulting in fatalities, has been very rarely reported. Experience in epilepsy has indicated that patients most at risk, especially in cases of multiple anticonvulsant therapy, are infants and in particular young children under the age of 3 years and those with severe seizure disorders, organic brain disease, and (or) congenital metabolic or degenerative disease associated with mental retardation.
After the age of 3 years, the incidence of occurrence is significantly reduced and progressively decreases with age.

The concomitant use of salicylates should be avoided in children under 3 years due to the risk of liver toxicity. Additionally, salicylates should not be used in children under 16 years (see aspirin/salicylate product information on Reye’s syndrome).

Monotherapy is recommended in children under the age of 3 years when prescribing Epilim, but the potential benefit of Epilim should be weighed against the risk of liver damage or pancreatitis in such patients prior to initiation of therapy.

In most cases, such liver damage occurred during the first 6 months of therapy, the period of maximum risk being 2-12 weeks.

Suggestive signs:
Clinical symptoms are essential for early diagnosis. In particular the following conditions, which may precede jaundice, should be taken into consideration, especially in patients at risk (see above: ‘Conditions of occurrence’):
- non specific symptoms, usually of sudden onset, such as asthenia, malaise, anorexia, lethargy, oedema and drowsiness, which are sometimes associated with repeated vomiting and abdominal pain.
- in patients with epilepsy, recurrence of seizures.
These are an indication for immediate withdrawal of the drug. Patients (or their family for children) should be instructed to report immediately any such signs to a physician should they occur. Investigations including clinical examination and biological assessment of liver function should be undertaken immediately.

Detection:
Liver function should be measured before therapy and then periodically monitored during the first 6 months of therapy, especially in those who seem most at risk, and those with a prior history of liver disease.

Amongst usual investigations, tests which reflect protein synthesis, particularly prothrombin rate, are most relevant.

Confirmation of an abnormally low prothrombin rate, particularly in association with other biological abnormalities (significant decrease in fibrinogen and coagulation factors; increased bilirubin level and raised transaminases) requires cessation of Epilim therapy. As a matter of precaution and in case they are taken concomitantly salicylates should also be discontinued since they employ the same metabolic pathway.

As with most antiepileptic drugs, increased liver enzymes are common, particularly at the beginning of therapy; they are also transient.

More extensive biological investigations (including prothrombin rate) are recommended in these patients; a reduction in dosage may be considered when appropriate and tests should be repeated as necessary.

**Pancreatitis:** Pancreatitis, which may be severe and result in fatalities, has been very rarely reported. Patients experiencing nausea, vomiting or acute abdominal pain should have a prompt medical evaluation (including measurement of serum amylase). Young children are at particular risk; this risk decreases with increasing age. Severe seizures and severe neurological impairment with combination anticonvulsant therapy may be risk factors. Hepatic failure with pancreatitis increases the risk of fatal outcome. In case of pancreatitis, Epilim should be discontinued.

**Women of childbearing potential (see section 4.6):** This medicine should not be used in women of child-bearing potential unless clearly necessary (i.e. in situations where other treatments are ineffective or not tolerated). This assessment is to be made before Epilim is prescribed for the first time, or when women of child bearing potential treated with Epilim plans a pregnancy. Women of child-bearing potential must use effective contraception during treatment.

**Suicidal ideation and behaviour:**
Suicidal ideation and behaviour have been reported in patients treated with anti-epileptic agents in several indications. A meta-analysis of randomised placebo controlled trials of anti-epileptic drugs has also shown a small increased risk of suicidal ideation and behaviour. The mechanism of this risk is not known and the available data do not exclude the possibility of an increased risk for sodium valproate.

Therefore patients should be monitored for signs of suicidal ideation and behaviours and appropriate treatment should be considered. Patients (and caregivers of patients) should be advised to seek medical advice should signs of suicidal ideation or behaviour emerge.
Carbapenem agents:
The concomitant use of valproate and carbapenem agents is not recommended.

4.4.2 Precautions

Haematological: Blood tests (blood cell count, including platelet count, bleeding time and coagulation tests) are recommended prior to initiation of therapy or before surgery, and in case of spontaneous bruising or bleeding (see section 4.8 Undesirable Effects).

Renal insufficiency: In patients with renal insufficiency, it may be necessary to decrease dosage. As monitoring of plasma concentrations may be misleading, dosage should be adjusted according to clinical monitoring (see sections 4.2 Posology and Method of Administration and 5.2. Pharmacokinetic Properties).

Systemic lupus erythematosus: Although immune disorders have only rarely been noted during the use of Epilim, the potential benefit of Epilim should be weighed against its potential risk in patients with systemic lupus erythematosus (see also section 4.8 Undesirable Effects).

Hyperammonaemia: When a urea cycle enzymatic deficiency is suspected, metabolic investigations should be performed prior to treatment because of the risk of hyperammonaemia with Epilim.

Weight gain: Epilim very commonly causes weight gain, which may be marked and progressive. Patients should be warned of the risk of weight gain at the initiation of therapy and appropriate strategies should be adopted to minimise it (see section 4.8 Undesirable Effects).

Pregnancy: Women of childbearing potential should not be started on Epilim without specialist neurological advice. Adequate counselling should be made available to all pregnant women with epilepsy of childbearing potential regarding the risks associated with pregnancy because of the potential teratogenic risk to the foetus (see also section 4.6 Pregnancy and Lactation).

Diabetic patients: Epilim is eliminated mainly through the kidneys, partly in the form of ketone bodies; this may give false positives in the urine testing of possible diabetics.

Alcohol: Alcohol intake is not recommended during treatment with valproate

4.5 Interactions with other medicinal products and other forms of interactions

4.5.1 Effects of Epilim on other drugs

- Antipsychotics, MAO inhibitors, antidepressants and benzodiazepines
  Epilim may potentiate the effect of other psychotropics such as antipsychotics, MAO inhibitors, antidepressants and benzodiazepines; therefore, clinical monitoring is advised and the dosage of the other psychotropics should be adjusted when appropriate.
  In particular, a clinical study has suggested that adding olanzapine to valproate or lithium therapy may significantly increase the risk of certain adverse events associated with
olanzapine e.g. neutropenia, tremor, dry mouth, increased appetite and weight gain, speech disorder and somnolence.

- **Phenobarbital**
  Epilim increases phenobarbital plasma concentrations (due to inhibition of hepatic catabolism) and sedation may occur, particularly in children. Therefore, clinical monitoring is recommended throughout the first 15 days of combined treatment with immediate reduction of phenobarbital doses if sedation occurs and determination of phenobarbital plasma levels when appropriate.

- **Primidone**
  Epilim increases primidone plasma levels with exacerbation of its adverse effects (such as sedation); these signs cease with long term treatment. Clinical monitoring is recommended especially at the beginning of combined therapy with dosage adjustment when appropriate.

- **Phenytoin**
  Epilim decreases phenytoin total plasma concentration. Moreover Epilim increases phenytoin free form with possible overdosage symptoms (valproic acid displaces phenytoin from its plasma protein binding sites and reduces its hepatic catabolism). Therefore clinical monitoring is recommended; when phenytoin plasma levels are determined, the free form should be evaluated.

- **Carbamazepine**
  Clinical toxicity has been reported when Epilim was administered with carbamazepine as Epilim may potentiate toxic effects of carbamazepine. Clinical monitoring is recommended especially at the beginning of combined therapy with dosage adjustment when appropriate.

- **Lamotrigine**
  The risk of rash associated with the use of Epilim may be increased if lamotrigine is also administered. Epilim may reduce lamotrigine metabolism and increase its mean half-life, dosages should be adjusted (lamotrigine dosage decreased) when appropriate.

- **Zidovudine**
  Epilim may raise zidovudine plasma concentration leading to increased zidovudine toxicity.

- **Vitamin K-dependent anticoagulants**
  The anticoagulant effect of warfarin and other coumarin anticoagulants may be increased following displacement from plasma protein binding sites by valproic acid. The prothrombin time should be closely monitored.

- **Temozolomide**
  Co-administration of temozolomide and Epilim may cause a small decrease in the clearance of temozolomide that is not thought to be clinically relevant.

4.5.2 **Effects of other drugs on Epilim**
Antiepileptics with enzyme inducing effect (including phenytoin, phenobarbital, carbamazepine) decrease valproic acid plasma concentrations. Dosages should be adjusted according to blood levels in case of combined therapy.

On the other hand, combination of felbamate and Epilim may increase valproic acid plasma concentration. Epilim dosage should be monitored.

*Mefloquine* and *chloroquine* increase valproic acid metabolism and may lower the seizure threshold; therefore epileptic seizures may occur in cases of combined therapy. Accordingly, the dosage of Epilim may need adjustment.

In case of concomitant use of Epilim and highly protein bound agents (e.g. aspirin), free valproic acid plasma levels may be increased.

Valproic acid plasma levels may be increased (as a result of reduced hepatic metabolism) in case of concomitant use with *cimetidine* or *erythromycin*.

*Carbapenem antibiotics* such as *imipenem*, *panipenem* and *meropenem*: Decrease in valproic acid blood level, sometimes associated with convulsions, has been observed when imipenem or meropenem were combined. If these antibiotics have to be administered, close monitoring of valproic acid blood levels is recommended.

Colestyramine may decrease the absorption of Epilim.

Rifampicin may decrease the valproate blood levels resulting in a lack of therapeutic effect. Therefore, valproate dosage adjustment may be necessary when it is co-administered with rifampicin.

### 4.5.3 Other Interactions

Caution is advised when using Epilim in combination with newer anti-epileptics whose pharmacodynamics may not be well established.

Concomitant administration of valproate and topiramate has been associated with encephalopathy and/or hyperammonaemia. In patients taking these two drugs, careful monitoring of signs and symptoms is advised in particularly at-risk patients such as those with pre-existing encephalopathy.

Epilim usually has no enzyme-inducing effect; as a consequence, Epilim does not reduce efficacy of oestroprogestative agents in women receiving hormonal contraception, including the oral contraceptive pill.

### 4.6 Fertility, pregnancy and lactation

Women of childbearing potential should not be started on Epilim without specialist neurological advice.

Adequate counselling should be made available to all women with epilepsy of childbearing potential regarding the risks associated with pregnancy because of the potential teratogenic risk to the foetus (See also section 4.6.1). Women who are taking
Epilim and who may become pregnant should receive specialist neurological advice and the benefits of its use should be weighed against the risks. Epilim is the antiepileptic of choice in patients with certain types of epilepsy such as generalised epilepsy ± myoclonus/photosensitivity. For partial epilepsy, Epilim should be used only in patients resistant to other treatment.

If pregnancy is planned, consideration should be given to cessation of Epilim treatment, if appropriate.

When Epilim treatment is deemed necessary, precautions to minimize the potential teratogenic risk should be followed. (See also section 4.6.1 paragraph entitled “In view of the above”)

4.6.1 Pregnancy

- Risk associated with epilepsy and antiepileptics
In offspring born to mothers with epilepsy receiving any anti-epileptic treatment, the overall rate of malformations has been demonstrated to be higher than the rate (approximately 3 %) reported in the general population. An increased number of children with malformations have been reported in cases of multiple drug therapy. Malformations most frequently encountered are cleft lip and cardio-vascular malformations.

No sudden discontinuation in the anti-epileptic therapy should be undertaken as this may lead to breakthrough seizures which could have serious consequences for both the mother and the foetus.

Antiepileptic drugs should be withdrawn under specialist supervision.

- Risk associated with seizures
During pregnancy, maternal tonic clonic seizures and status epilepticus with hypoxia carry a particular risk of death for mother and the unborn child.

- Risk associated with valproate
In animals: teratogenic effects have been demonstrated in the mouse, rat and rabbit. There is animal experimental evidence that high plasma peak levels and the size of an individual dose are associated with neural tube defects.

In humans: Available data suggest an increased incidence of minor or major malformations including neural tube defects, cranio-facial defects, malformations of the limbs, cardiovascular malformations, hypospadias and multiple anomalies involving various body systems in offspring born to mothers with epilepsy treated with valproate. The data suggest that the use of valproate is associated with a greater risk of certain types of these malformations (in particular neural tube defects) than some other anti-epileptic drugs.

Data have suggested an association between in-utero exposure to valproate and the risk of developmental delay (frequently associated with dysmorphic features), particularly of verbal IQ. However, the interpretation of the observed findings in offspring born to mothers with epilepsy treated with sodium valproate remains uncertain, in the view of possible confounding factors such as low maternal IQ, genetic, social, environmental factors and poor maternal seizure control during pregnancy.
Both valproate monotherapy and valproate as part of polytherapy are associated with abnormal pregnancy outcome. Available data suggest that antiepileptic polytherapy including sodium valproate is associated with a higher risk of abnormal pregnancy outcome than sodium valproate monotherapy.

Autism spectrum disorders have also been reported in children exposed to valproate in utero.

- **In view of the above data**
  The following recommendations should be taken into consideration: This medicine should not be used during pregnancy and in women of child-bearing potential unless clearly necessary (i.e. in situations where other treatments are ineffective or not tolerated). This assessment is to be made before Epilim is prescribed for the first time, or when a women of child bearing potential treated with Epilim plans a pregnancy. Women of child-bearing potential must use effective contraception during treatment. Women of child-bearing potential should be informed of the risks and benefits of the use of Epilim during pregnancy.

If a women plans a pregnancy or becomes pregnant, Epilim therapy should be reassessed whatever the indication:

- In epilepsy, valproate therapy should not be discontinued without reassessment of the benefit risk. If further to a careful evaluation of the risks and benefits, Epilim treatment is to be continued during pregnancy it is recommended to use Epilim in divided doses over the day at the lowest effective dose. The use of a prolonged release formulation may be preferable to any other treatment form.
- In addition, if appropriate, folate supplementation should be started before pregnancy at a relevant dosage (5mg daily) as it may minimise the risk of neural tube defects.
- Specialised prenatal monitoring should be instituted in order to detect the possible occurrence of neural tube defects or other malformations.

The available evidence suggests that anticonvulsant monotherapy is preferred. Dosage should be reviewed before conception and the lowest effective dose used, in divided doses, as abnormal pregnancy outcome tends to be associated with higher total daily dosage and with the size of an individual dose. The incidence of neural tube defects rises with increasing dosage, particularly above 1000mg daily. The administration in several divided doses over the day and the use of a prolonged release formulation is preferable in order to avoid high peak plasma levels.

Pregnancies should be carefully screened by ultrasound, and other techniques if appropriate (see Section 4.4 Special Warnings and Precautions for use).

- **Risk in the neonate**
  Very rare cases of haemorrhagic syndrome have been reported in neonates whose mothers have taken Epilim during pregnancy. This haemorrhagic syndrome is related to hypofibrinogenemia; afibrinogenemia has also been reported and may be fatal. These are possibly associated with a decrease of coagulation factors. However, this syndrome has to be distinguished from the decrease of the vitamin-K factors induced by phenobarbital and other anti-epileptic enzyme inducing drugs.
Therefore, platelet count, fibrinogen plasma level, coagulation tests and coagulation factors should be investigated in neonates.

Cases of hypoglycaemia have been reported in neonates, whose mothers have taken valproate during the third trimester of the pregnancy.

4.6.2 Lactation

Excretion of Epilim in breast milk is low, with a concentration between 1 % to 10 % of total maternal serum levels. Although there appears to be no contra-indication to breastfeeding, physicians are advised that in any individual case, consideration should be given to the safety profile of Epilim, specifically haematological disorders (see section 4.8 Undesirable Effects).

4.7 Effects on ability to drive and use machines

Not applicable - use of intravenous formulation restricted to patients unable to take oral therapy. However, note use of Epilim may provide seizure control such that the patient may again be eligible to hold a driving licence.

Patients should be warned of the risk of transient drowsiness, especially in cases of anticonvulsant polytherapy or association with benzodiazepines (see section 4.5 Interactions with Other Medicaments and Other Forms of Interaction).

4.8 Undesirable effects

Congenital and familial/genetic disorders: (see section 4.6 Pregnancy and Lactation)

Hepato-biliary disorders rare cases of liver injury dysfunction (see section 4.4.1 Warnings) Severe liver damage, including hepatic failure sometimes resulting in death, has been reported (see also sections 4.2, 4.3 and 4.4.1). Increased liver enzymes are common, particularly early in treatment, and may be transient (see section 4.4.1).

Gastrointestinal disorders (nausea, gastralgia, diarrhoea) frequently occur at the start of treatment, but they usually disappear after a few days without discontinuing treatment. These problems can usually be overcome by taking Epilim with or after food or by using Enteric Coated Epilim.

Very rare cases of pancreatitis, sometimes lethal, have been reported (see section 4.4 Special Warnings and Special Precautions for Use).

Nervous system disorders:

Sedation has been reported occasionally, usually when in combination with other anticonvulsants. In monotherapy it occurred early in treatment on rare occasions and is usually transient. Rare cases of lethargy occasionally progressing to stupor, sometimes with associated hallucinations or convulsions have been reported. Encephalopathy and coma have very rarely been observed. These cases have often been associated with too high a starting dose or too rapid a dose escalation or concomitant use of other anticonvulsants, notably phenobarbital or topiramate. They have usually been reversible on withdrawal of treatment or reduction of dosage.
Very rare cases of reversible extrapyramidal symptoms which may not be reversible including reversible parkinsonism, or reversible dementia associated with reversible cerebral atrophy have been reported. Dose-related ataxia and fine postural tremor have occasionally been reported.

An increase in alertness may occur; this is generally beneficial but occasionally aggression, hyperactivity and behavioural deterioration have been reported.

Psychiatric disorder: Confusion has been reported

Metabolic disorders:
Cases of isolated and moderate hyperammonaemia without change in liver function tests may occur frequently, are usually transient and should not cause treatment discontinuation. However, they may present clinically as vomiting, ataxia, and increasing clouding of consciousness. Should these symptoms occur Epilim should be discontinued. Very rare cases of hyponatraemia have been reported.

Syndrome of inappropriate secretion of ADH (SIADH)

Hyperammonaemia associated with neurological symptoms has also been reported (see section 4.4.2 Precautions). In such cases further investigations should be considered. When using Epilim intravenously, dizziness may occur a few minutes after injection.

Blood and lymphatic system disorders:
Frequent occurrence of thrombocytopenia, rare cases of anaemia, leucopenia or pancytopenia. The blood picture returned to normal when the drug was discontinued.

Bone marrow failure, including pure red cell aplasia.
Agranulocytosis.

Isolated findings of a reduction in blood fibrinogen and/or an increase in prothrombin time have been reported, usually without associated clinical signs and particularly with high doses (Epilim has an inhibitory effect on the second phase of platelet aggregation). Spontaneous bruising or bleeding is an indication for withdrawal of medication pending investigations (see also section 4.6 Pregnancy and Lactation).

Skin and subcutaneous tissue disorders:
rash rarely occurs with Epilim. In very rare cases toxic epidermal necrolysis, Stevens-Johnson syndrome and erythema multiforme have been reported.

Transient hair loss, which may sometimes be dose-related, has often been reported. Regrowth normally begins within six months, although the hair may become more curly than previously. Hirsutism and acne have been very rarely reported.

Reproductive system and breast disorders:
Amenorrhoea and dysmenorrhoea irregular periods have been reported. Very rarely gynaecomastia has occurred. Male infertility.

Vascular disorders:
The occurrence of vasculitis has occasionally been reported.
Ear disorders:
Hearing loss, either reversible or irreversible has been reported rarely; however a cause
and effect relationship has not been established.

Renal and urinary disorders:
There have been isolated reports of a reversible Fanconi’s syndrome (a defect in proximal
renal tubular function giving rise to glycosuria, amino aciduria, phosphaturia, and
uricosuria) associated with Epilim therapy, but the mode of action is as yet unclear.
Very rare cases of enuresis have been reported.

Immune system disorders:
Angioedema, Drug Rash with Eosinophilia, Systemic Symptoms (DRESS) syndrome,
and allergic reactions (ranging from rash to hypersensitivity reactions) have been
reported.

General disorders and administration site conditions:
Very rare cases of non-severe peripheral oedema have been reported.
Increase in weight may also occur. Weight gain being a risk factor for polycystic ovary
syndrome, it should be carefully monitored (see section 4.4 Special Warnings and Special
Precautions for Use).

When using Epilim intravenously, nausea or dizziness may occur a few minutes after
injection; they disappear spontaneously within a few minutes.

4.9 Overdose
Cases of accidental and deliberate Epilim overdosage have been reported. At plasma
concentrations of up to 5 to 6 times the maximum therapeutic levels, there are unlikely to be
any symptoms other than nausea, vomiting and dizziness.

Signs of massive overdose, i.e. plasma concentration 10 to 20 times maximum therapeutic
levels, usually include CNS depression or coma with muscular hypotonia, hyporeflexia,
miosis, impaired respiratory function, metabolic acidosis. A favourable outcome is usual,
however some deaths have occurred following massive overdose.

Symptoms may however be variable and seizures have been reported in the presence of very
high plasma levels (see also section 5.2 Pharmacokinetic Properties).
Cases of intracranial hypertension related to cerebral oedema have been reported.

Hospital management of overdose should be symptomatic, including cardio-respiratory
monitoring. Gastric lavage may be useful up to 10 to 12 hours following ingestion.

Haemodialysis and haemoperfusion have been used successfully.
Naloxone has been successfully used in a few isolated cases, sometimes in association
with activated charcoal given orally.
In case of massive overdose, haemodialysis and haemoperfusion have been used
successfully.

5. Pharmacological properties
5.1 **Pharmacodynamic properties**

Sodium valproate is an anticonvulsant.

In certain *in-vitro* studies it was reported that Epilim could stimulate HIV replication but studies on peripheral blood mononuclear cells from HIV-infected subjects show that Epilim does not have a mitogen-like effect on inducing HIV replication. Indeed the effect of Epilim on HIV replication *ex-vivo* is highly variable, modest in quantity, appears to be unrelated to the dose and has not been documented in man.

5.2 **Pharmacokinetic properties**

The half-life of Epilim is usually reported to be within the range 8-20 hours. It is usually shorter in children.

In patients with severe renal insufficiency it may be necessary to alter dosage in accordance with free plasma valproic acid levels.

The reported effective therapeutic range for plasma valproic acid levels is 40-100mg/litre (278-694 micromol/litre). This reported range may depend on time of sampling and presence of co-medication. The percentage of free (unbound) drug is usually between 6% and 15% of the total plasma levels. An increased incidence of adverse effects may occur with plasma levels above the effective therapeutic range.

The pharmacological (or therapeutic) effects of Epilim may not be clearly correlated with the total or free (unbound) plasma valproic acid levels.

5.3 **Preclinical safety data**

There are no pre-clinical data of relevance to the prescriber which are additional to that already included in other sections of the SPC.

6. **Pharmaceutical particulars**

6.1 **List of Excipients**

None.

6.2 **Major incompatibilities**

Epilim Intravenous should not be administered via the same line as other IV additives.

6.3 **Shelf life**

60 months as unopened vial of freeze-dried powder. 24 hours after reconstitution and dilution for use as infusion solution (See Section 6.4 and 6.6).

6.4 **Special precautions for storage**

Epilim freeze-dried powder: No specific storage conditions.
Reconstituted infusion solutions: at 2-8°C if stored before use, discarding any remaining solution after 24 hours.

6.5 **Nature and contents of container**

Colourless glass vial (Type I) with chlorobutyl rubber closure and crimped with an aluminium cap. The vial is supplied packed in a cardboard carton along with one ampoule containing 4ml of solvent (Water for Injection).

6.6 **Special precautions for disposal**

For intravenous use, the reconstituted solution should be used immediately and any unused portion discarded.

If the reconstituted solution is further diluted for use as an infusion solution, the dilute solution may be stored for up to 24 hours if kept at 2 to 8°C before use, discarding any remaining after 24 hours.

7. **Marketing authorisation holder**

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One Onslow Street
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8. **Marketing authorisation number**

PL 11723/0022

9. **Date of the first authorisation or renewal**

18 August 1993

10 **Date of Revision of the Text**

14 July 2011

**Legal Status**

POM