REGIONAL PEDIATRIC PARENTERAL DRUG MONOGRAPH

GENERIC NAME

fosphenytoin

HIGH ALERT DOUBLE CHECK

Effective Date: May 8 2019 **Revised Date:** May 20 2020	CLASSIFICATION **Anticonvulsant**	OTHER NAMES **Cerebyx®**	PAGE 1 of 2

ADMINISTRATION POLICY:

IV Bolus –	May be administered by a nurse
IV Intermittent/IO-	May be administered by a nurse
IM Injection-	May be administered by a nurse

RECONSTITUTION/DILUTION/ADMINISTRATION:

Available as:	50 mg/mL phenytoin equivalents (PE). Store in refrigerator.
IV Bolus:	Inject into infusing IV solution over 3 – 5 minutes but not greater than maximum rate.
IV Intermittent/IO:	Dilute in compatible IV solution and infuse over 10 – 15 minutes but not greater than maximum rate.

Maximum Concentration:	IV, IM, IO:	25 mg PE/mL
Minimum Concentration:	IV, IO:	1.5 mg PE/mL
Maximum Rate:	IV:	3 mg PE/kg/minute (150 mg PE/minute)
	IO:	2 mg PE/kg/minute

DOSAGE:

NOTE: Each 1.5 mg of fosphenytoin Na+ is metabolically converted to 1 mg of phenytoin after administration. Doses of fosphenytoin are expressed in PE; therefore, fosphenytoin and phenytoin products can be converted directly (1 mg PE = 1 mg phenytoin)

NOTE: IM route should not be used in the treatment of status epilepticus because the therapeutic phenytoin concentrations may not be reached as quickly as with IV administration. If IV access is impossible, loading doses via IM have been used for other indications

Neonate:	IV,IM	Load:	15 - 20 mg PE/kg
		Maintenance:	4 to 8 mg PE/kg/day in 2 divided doses; initiate maintenance doses at least 12 hours after loading dose
Infant, Child, Adolescent			
	IV, IM, IO	Load:	15 - 20 mg PE/kg (max 1500 mg PE)
		Maintenance:	4 – 10 mg PE/kg/day every 12 hours: (initiate maintenance doses greater than or equal to 12 hours after load)
Renal or Hepatic Impairment:			Dosage adjustment may be required

STABILITY/COMPATIBILITY:

Stability:	Store in refrigerator. Maximum 48 hours storage at room
Stability of Final Admixture:	24 hours at room temperature or in refrigerator when diluted with D5W, NS or SW.
Compatibility:	D5W, D10W, NS, dextrose-saline combinations and Ringer's Lactate

REGIONAL PEDIATRIC PARENTERAL DRUG MONOGRAPH

GENERIC NAME
fosphenytoin

Effective Date: May 8 2019 **Revised Date:** May 20 2020	CLASSIFICATION **Anticonvulsant**	OTHER NAMES **Cerebyx®**	PAGE 2 of 2

PRECAUTIONS, POTENTIAL ADVERSE REACTIONS:

- Fosphenytoin is a prodrug for phenytoin and adverse effects are the same except as noted below:
- Hypersensitivity: syndrome of fever, skin eruptions, lymphadenopathy and acute hepatic failure with phenytoin
- CNS: fever, severe burning, itching or paresthesia especially of face and groin area lasting 3-50 min post administration (in 7/16 volunteers at maximum dose and rate); mild sensory disturbances may last 24 hours; mechanism unproven but possibly due to phosphate load.
  MANAGEMENT: temporarily discontinue administration or decrease rate of infusion.
- CV: hypotension, bradycardia or arrhythmias (high doses or rates greater than or equal to 2 mg PE/kg/minute)
- Local: pain and burning at infusion site RARE with IV (compared to IV phenytoin); transient, mild to moderate local itching with IM administration

CAUTION:

- Patients with renal or hepatic impairment or hypoalbuminemia due to increased unbound fraction of fosphenytoin and phenytoin and increased rate of conversion of fosphenytoin to phenytoin with increased severity of adverse effects.
- Phosphate load (0.0037 mmol phosphate/mg PE) in patients with renal impairment.
- Use for more than 5 days in patients with renal failure: formaldehyde produced on conversion to phenytoin.
- Abrupt discontinuation of fosphenytoin may increase seizure frequency and/or precipitate status epilepticus

CONTRAINDICATIONS:

- Patients with known hypersensitivity to fosphenytoin or other hydantoins (e.g., phenytoin) sinus bradycardia, sino-atrial block 2nd and 3rd degree AV block or Adams-Stokes syndrome.

ADDITIONAL NOTES AND NURSING CONSIDERATIONS (continued):

- 1 mmol fosphenytoin yields 1 mmol phenytoin plus phosphate (0.0037 mmol/mg PE) and formaldehyde
- Half-life conversion of fosphenytoin to phenytoin: 15 minutes; conversion complete in 0.5-2 hours
- IM: time to maximum fosphenytoin concentration: 30 minutes; conversion to phenytoin complete in 3 hours
- Therapeutic PHENYTOIN serum concentration: Neonates: 8 to 15 mcg/mL (pre-dose); 1 month to adolescence: 10 to 20 mcg/mL (pre-dose). Plasma protein binding: 95-99%
- Do NOT order “peak” or “post-dose” serum concentrations; interference between fosphenytoin and phenytoin occurs with fluorescence polarization and enzyme multiplied assays before fosphenytoin conversion is complete.