1. Baby girl A, 3kg, 15 days, is receiving phenobarbital because of neonatal seizures. An IV loading dose of phenobarbital sodium of 20mg/kg was given followed by maintenance doses of 1.5mg/kg every 12 hours. She has a post-load concentration of 24mg/L at 1 hour after the dose. Calculate the baby’s volume of distribution.

2. C.B., a 10-year-old, 32 kg female, is receiving valproic acid sprinkles 250 mg (2×125mg) po Q 8 hr for her seizure disorder. Calculate her valproic acid level at steady state.

3. D.W. is a 52-year-old, 70kg male with glomerulonephritis. His creatinine clearance is reasonably good, but he has a low serum albumin concentration of 2.0g/dL. D.W. is receiving phenytoin and has a steady-state phenytoin concentration of 7mg/L. What would his plasma phenytoin concentration be observed if his serum albumin concentration is normal? (Phenytoin fα = 0.1, normal serum albumin=4.4g/dL).

4. P.G, a 50 years old, 80 kg patient, is to be treated p.o. with sodium phenytoin capsules, calculate the following:
   1). The loading dose to produce an initial concentration of 18 mg/L. How would you administer this dose?
   2). The daily maintenance dose to produce an average steady state concentration of 15 mg/L.
   (Please use the key parameters available in the slides.)

5. M.K., a 58-year-old, 60 kg female, was admitted to the hospital in status asthmaticus. She received an IV aminophylline loading dose of 375 mg at 9 p.m., followed by a constant aminophylline (dihydrate) infusion of 60 mg/hr. The theophylline concentration was 12mg/L at 10pm and 16mg/L at 3am. Calculate the apparent clearance and half-life of theophylline in M.K. Assume that the desired steady-state plasma theophylline concentration for M.K. is 15 mg/L, determine whether the maintenance dose needs to be adjusted. (Vd = 0.5L/kg)