Nitrofurantoin

**Antibiotic Class:**
Nitrofuran

**Antimicrobial Spectrum:**
*E. coli, Citrobacter spp., S. sapphophyticus, E. faecalis.*

**Mechanism of Action:**
Inhibits bacterial enzymes responsible for cell wall synthesis

**Pharmacodynamics:**
No data

**Pharmacokinetics:**
Bioavailability: 90%, Tmax: 2 hours, Cmax (50mg PO): 0.4mcg/ml, Volume of distribution: 40L, Half-life: 1 hour

**Adverse Effects:**
CNS: Headache, dizziness, confusion
GI: nausea, vomiting, pancreatitis
Hematologic: Eosinophilia and fever
Other: Peripheral neuritis

**Dosage:**
Capsule, macrocrystal: 25, 50, 100 mg
Capsule, macrocrystal/monohydrate: 100 mg
Suspension, oral: 25 mg/5 mL

Adults – UTI, treatment: Oral: 50-100 mg/dose every 6 hours (not to exceed 400 mg/24 hours)
        UTI, prophylaxis:: Oral: 50-100 mg/dose at bedtime
Children: UTI, treatment: Oral: Children >1 month: 5-7 mg/kg/day in divided doses every 6 hours; maximum: 400 mg/day
        UTI, chronic therapy: Oral: 1-2 mg/kg/day in divided doses every 12-24 hours; maximum: 100 mg/day

Disease state based dosing:
Renal failure: Contraindicated in patients with CrCl < 60ml/min, hemodialysis, peritoneal dialysis, and hemofiltration
Hepatic failure: No data

**Contraindications/Warnings/Precautions:**
Precautions:
- Peripheral neuritis is frequently associated with nitrofurantoin use in the elderly with impaired renal function. Symptoms begin within 45 days of therapy and involve ascending motor and sensory polyneuropathy
**Drug Interactions:**
Phenytoin – Increased metabolism of phenytoin suggested
Magnesium trisilicate antacids – Decreased nitrofurantoin absorption
Probenecid – Decreased tubular secretion of nitrofurantoin
Quinolones – In-vitro antagonism – clinical significance unknown

**Pregnancy:**
Category B: No evidence of risk in humans but studies inadequate.

**Monitoring requirements:**
Therapeutic: Culture and sensitivities, signs and symptoms of infection
Toxic: Signs/Symptoms of polyneuropathy

**Brand names/Manufacturer:**