

# Chloramphenicol

## Antibiotic Class:

Chloramphenicol

## Antimicrobial Spectrum:

Gram-positive: *Streptococcus spp.*, *Staphylococcus spp.*, *Enterococcus spp.*, *Bacillus anthracis*, *Listeria monocytogenes*

Gram-negative: *Hemophilus influenzae*, *M. catarrhalis*, *N. meningitides*, *E. coli*, *P. mirabilis*, *Salmonella spp.*, *Shigella spp.*, *Stenotrophomonas maltophilia*

## Mechanism of Action:

Termination of polypeptide synthesis by binding to the bacterial 50S ribosomal subunit

## Pharmacodynamics:

No data

## Pharmacokinetics:

$C_{max}$ : 15.4±5.8mcg/ml

Half-life: 3.2±1.0 (hr)

Volume of distribution: 0.81±0.18 hours

Total Clearance: 228±113.4 ml/min

Table 1

## Adverse Effects:

Hematologic: irreversible aplastic anemia, myelosuppression, leukopenia,

Neurologic: optic neuritis, peripheral neuritis, mental status changes

GI: glossitis, stomatitis

Skin: rash, anaphylaxis

Other: gray baby syndrome

## Dosage:

Infants < 1 week: 25mg/kg q 24 hours

Infants 1 – 4 weeks: 25mg/kg q 12 hours

Older children/adults: 50mg/kg/day divided q 6 hours

Severe infections (adults): 100mg/kg/day divided q 6 hours (max dose 4g/day)

Disease state based dosing:

Renal failure: Dosing adjustments not necessary (including hemodialysis and peritoneal dialysis)

Hepatic failure: No official recommendations exist, but dose adjustments based on serum levels may be necessary

## Contraindications/Warnings/Precautions:

Precautions:

- Infants, newborns, patients with hepatic insufficiency are at greater risk for toxicity

- Peak serum concentrations > 25mg/L associated with bone marrow toxicity

**Drug Interactions:**

Chloramphenicol is an inhibitor of the cytochrome P450 2C9 and 3A4 isoenzyme. Caution should be exercised and monitoring is suggested when concomitantly administering chloramphenicol with drugs that have substrates of these enzymes.

**Pregnancy:**

Category C: Risk unknown. Human studies inadequate.

**Monitoring Requirements:**

LFTs and CBC with differential at baseline, then Reticulocyte count and CBC with differential twice weekly while on therapy. Also, serum iron levels. And serum concentrations should be monitored routinely.

Therapeutic: Culture and sensitivities, signs and symptoms of infection

Toxic: Reticulocytopenia, anemia, leukopenia, thrombocytopenia

Serum levels: 0.5 – 1.5 hours after IV dose, peak target is 10 – 25mg/L.

**Brand names/Manufacturer:**

CHLOROMYCETIN (Pfizer – AUSTRALIA, SPAIN, CANADA, IRELAND, SOUTH AFRICE, SWEDEN, MEXICO, FINLAND, USA, NEW ZEALAND, INDIA)