Enrofloxacin

- Drug Information

Brand Names:

Baytril®, EnroMed™ 100, Enroquin® Flavored Tablets, Baytril® 100, Enroflox™ 100, Enroflox™, Zobuxa™, Enrosite™ Injection For Dogs , Quellaxcin™ 100

Pharmacology:

Fluoroquinolone antibiotic-bactericidal.

Indications:

For the treatment of bacterial infections caused by susceptible bacteria.
For susceptibility of specific bacteria to this antibiotic, see specialized reference material.

Cattle - Single-Dose Therapy: Baytril® 100 is indicated for the treatment of bovine respiratory disease (BRD) associated with Mannheimia haemolytica, Pasteurella multocida, Histophilus somni and Mycoplasma bovis in beef and non-lactating dairy cattle; and for the control of BRD in beef and non-lactating dairy cattle at high risk of developing BRD associated with M. haemolytica, P. multocida, H. somni and M. bovis.
Cattle - Multiple-Day Therapy: Baytril® 100 is indicated for the treatment of bovine respiratory disease (BRD) associated with Mannheimia haemolytica, Pasteurella multocida and Histophilus somni in beef and non-lactating dairy cattle.
Swine: Baytril® 100 is indicated for the treatment and control of swine respiratory disease (SRD) associated with Actinobacillus pleuropneumoniae, Pasteurella multocida, Haemophilus parasuis, Streptococcus suis, Bordetella bronchiseptica and Mycoplasma hyopneumoniae.

Cattle: Enroflox™ 100 is indicated as a multiple dose therapy only for the treatment of bovine respiratory disease (BRD) associated with Mannheimia haemolytica, Pasteurella multocida and Histophilus somni in beef and non-lactating dairy cattle.
Swine: Enroflox™ 100 is indicated as a single dose therapy only for the treatment and control of swine respiratory disease (SRD) associated with Actinobacillus pleuropneumoniae, Pasteurella multocida, Haemophilus parasuis and Streptococcus suis.
Enroflox™ 100 is also indicated for the control of colibacillosis in groups or pens of weaned pigs when colibacillosis associated with E. coli has been diagnosed.

ContraIndications:

- General

Contraindicated in patients with known sensitivity to this type of drug.
Use with caution in patients with possible CNS disorders-may cause CNS stimulation and seizures.
Contraindicated in pregnancy.
Caution in liver and kidney disease - may need to adjust dosage to minimize accumulation.
Small and medium breed dogs 2 - 8 months old and large, giant breeds up to 1 year old have an increased risk of articular cartilage damage.
Quinolone-class drugs have been shown to produce erosions of cartilage of weight-bearing joints and other signs of arthropathy in immature animals of various species.
Rapid or undiluted IV administration to dogs increases risk for cardiac arrhythmias, hypotension, vomiting, and mast cell degranulation (i.e., release of histamine and other inflammatory mediators).
Extra-label use of the 22.7 mg/mL (2.27%) injectable solution diluted 1:1 to 1:10 with sodium chloride 0.9% for slow IV administration (over 10-30 minutes) has been described. Injectable enrofloxacin must not be mixed with or come into contact with any IV solution containing magnesium (eg, Normosol®-R, Plasmalyte®-R, -A; morbidity and mortality secondary to microprecipitants lodging in patient's lungs have been reported.

- Small Animal

- Dog

Contraindicated in small and medium breed dogs 2 - 8 months old and large, giant breeds up to 1 year old due to the risk of articular cartilage damage.

- Cat

Use with caution in cats, particularly those with pre existing renal failure as it has been associated with retinal effects.

- Large Animal

WARNING: FDA prohibits extra label use in food animals.

Not to be used in cattle for dairy production or veal calves.
Administered dose volume should not exceed 5 mL per injection site.
Recent approval for individual animals for the treatment of bovine respiratory disease.
The effects of enrofloxacin on cattle or swine reproductive performance, pregnancy and lactation have not been adequately determined.
The long-term effects on articular joint cartilage have not been determined in pigs above market weight.
Subcutaneous injection can cause a transient local tissue reaction that may result in trim loss of edible tissue at slaughter.
Baytril® 100 contains different excipients than other Baytril® products. The safety and efficacy of this formulation in species other than cattle and swine have not been determined.
RESIDUE WARNINGS:
Cattle: Animals intended for human consumption must not be slaughtered within 28 days from the last treatment.
This product is not approved for female dairy cattle 20 months of age or older, including dry dairy cows. Use in these cattle may cause drug residues in milk and/or in calves born to these cows. A withdrawal period has not been established for this product in pre-ruminating calves. Do not use in calves to be processed for veal.
Swine: Animals intended for human consumption must not be slaughtered within 5 days of receiving a single-injection dose.
- Chicken
FDA prohibits the use of enrofloxacin in poultry.
- Turkey
FDA prohibits the use of enrofloxacin in poultry.

Interactions:

- General Interactions
Increased liver enzymes, BUN, creatinine and decreases in hematocrit have been reported in human taking fluoroquinolones. Clinical significance is unclear.
- Category Interactions
- Aminoglycoside Antibiotic
Synergism is possible but unpredictable with aminoglycosides.
- Antacid
Antacids may bind to enrofloxacin, preventing it's absorption. Separate by 2 hours.
- Cephalosporin antibiotic
Synergism is possible but unpredictable with third generation cephalosporins.
- Corticosteroid
Combination with fluoroquinolones may increase risk for tendonitis and tendon rupture.
- NSAID-Non Steroidal Antiinflammatory Drug
NSAIDs may increase risk for seizure activity.
- Penicillin / related
Synergism is possible but unpredictable with certain penicillins.
- Drug Interactions
- Aminophylline
If given concurrently, may increase serum levels of theophylline.
- CycloSPORINE
May exacerbate the nephrotoxicity associated with systemic CycloSPORINE.
- Levothyroxine sodium
May decrease levothyroxine efficacy
- Methotrexate
May increase MTX levels, which can result in toxicity.
- Nitrofurantoin
Nitrofurantoin may antagonize activity of enrofloxacin.
- QuiNIDine
May increase risk for cardiotoxicity
- Sildenafil citrate

May increase sildenafil exposure
- Sucralfate
Sucralfate may bind to enrofloxacin, preventing it's absorption. Separate by 2 hours.
- Theophylline
May inhibit theophylline metabolism and result in toxicity.
- Warfarin sodium
There is a potential for increased warfarin effects.

Adverse Effects:

- General
GI effects are very rare - anorexia, vomiting and diarrhea.
Ataxia, convulsions, incoordination, increased liver enzymes and lethargy are possible.
Cartilage damage has been reported-see contraindications.
May cause crystalluria-closely monitor hydration status.
Hypersensitivity reactions are possible.
Avoid or reduce dose in animals with kidney dysfunction.
Rapid IV injection may cause hypotension.
High dose long term therapy may cause subcapsular cataract formation and associated inflammation.
- Small Animal
- Cat
Doses higher than 5 mg/kg/day are not recommended as high dose may be associated with blindness in cats - mydriasis, retinal atrophy, attenuated retinal vessels, and hyper reflective tapeta have been associated.
Fixed drug eruptions are also possible.
- Birds (small)
IM injection can cause severe muscle necrosis.
- Rabbit
Use of injectable form given orally is unpalatable.
Dilute injectable for use as undiluted may cause skin to slough.
- Large Animal
Subcutaneous injection can cause a transient local tissue reaction that may result in trim loss of edible tissue at slaughter.

Dosages:

- General
Give oral dose form on an empty stomach unless GI side effects occur.
- Small Animal
- Dog
2.5 - 5 mg/kg by mouth, IM twice daily.
Label dose range 5 - 20 mg/kg by mouth once daily or divided twice daily (2.5 - 10 mg/kg by mouth twice daily)
- Cat
Doses higher than 5 mg/kg/day are not recommended as high dose may be associated with blindness in cats.
5 mg/kg by mouth once daily or divided twice daily for 2 - 3 days beyond resolution for a maximum of 30 days.
2.5 - 5 mg/kg IM (unapproved species for injectable) twice daily
- Birds (small)
IM injection can cause severe muscle necrosis.
15 mg/kg by mouth or IM or 250 mg/L drinking water.
- Rodent
Pocket Pet: 5 - 15 mg/kg every 12 hours by mouth.
Or 50 - 200 mg/liter water for 14 days.
- Rabbit

Use of injectable form given orally is unpalatable.
Dilute injectable for use as undiluted may cause skin to slough.
5 mg/kg IM, by mouth, SQ every 12 hours.
- Reptiles
5 mg/kg IM every 5 days for 25 days.
- Ferret
(Extra-label): 10 - 20 mg/kg PO, IM, or SQ (must be diluted) every 12 hours
- Snake
5 mg/kg every 12 - 24 hours.
- Hamster
Pocket Pet: 5 - 15 mg/kg every 12 hours by mouth.
- Turtle
5 mg/kg IM every 72 hours for 5 - 7 treatments
- Large Animal
WARNING: FDA prohibits extra label use in food animals. Not to be used in cattle for dairy production or veal calves. FDA prohibits the use of enrofloxacin in poultry.
Baytril 100 received recent approval for use in treatment of individual animals with bovine respiratory disease.
RESIDUE WARNINGS:
Cattle: Animals intended for human consumption must not be slaughtered within 28 days from the last treatment.
This product is not approved for female dairy cattle 20 months of age or older, including dry dairy cows. Use in these cattle may cause drug residues in milk and/or in calves born to these cows. A withdrawal period has not been established for this product in pre-ruminating calves. Do not use in calves to be processed for veal.
Swine: Animals intended for human consumption must not be slaughtered within 5 days of receiving a single-injection dose.
- Cattle
Administered dose volume should not exceed 5 mL per injection site.
Not for cattle intended for dairy production or for veal calves. Recent approval for individual animals for the treatment of bovine respiratory disease.
Single-Dose Therapy (BRD Treatment): Administer once, a subcutaneous dose of 7.5 - 12.5 mg/kg of body weight (3.4 - 5.7 mL/100 pound).
Single-Dose Therapy (BRD Control): Examples of conditions that may contribute to calves being at high risk of developing BRD include, but are not limited to, the following:
• Transportation with animals from two or more farm origins.
• An extended transport time with few to no rest stops.
• An environmental temperature change of >30°F during transportation.
• A >30°F range in temperature fluctuation within a 24 hour period.
• Exposure to wet or cold weather conditions.
• Excessive shrink (more than would be expected with a normal load of cattle).
• Stressful arrival processing procedures (e.g., castration or dehorning).
• Exposure within the prior 72 hours to animals showing clinical signs of BRD.

Multiple-Day Therapy (BRD Treatment): Administer daily, a subcutaneous dose of 2.5 - 5 mg/kg of body weight (1.1 - 2.3 mL/100 pound).
Treatment should be repeated at 24 hour intervals for three days.
Additional treatments may be given on Days 4 and 5 if animals that have shown clinical improvement but not total recovery.
- Horse
Controversial use-use only when other antibiotics are inappropriate or when client has been informed of risk for arthropathy. 2.5 mg/kg every 12 hours.
- Swine
Baytril 100and Enroflox 100: Administer once IM or behind the ear SQ 7.5 mg/kg.
Administered dose volume should not exceed 5 mL per injection site.

Special Notes:

None