

## Dosing Your Cat with Azithromycin Pediatric Suspension

*\* AYSHAZEN DISCLAIMER: Please note that azithromycin (Zithromax) is unlicensed for cats in the UK, and that although it is used in other countries for cats, the UK has not approved any dosage yet, so the responsibility for using it at any dose is at the owners own risk and I cannot accept any responsibility for its usage or dosage. As always, please be advised by your vet. Chrissy Russell, Ayshazen Cats*

By [Lorraine Shelton](#)

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Azithromycin, produced by Pfizer under the brand name Zithromax or Azitrocin, has emerged as a very valuable antibiotic for the treatment of various infections in the cat. It is well tolerated, even by young kittens, and its efficacy in the treatment of upper respiratory infections (including bordetella and chlamydia), in particular, is unequalled by other antibiotics. It is cleared very slowly from feline tissue, resulting in dosage schedules that are very convenient for the cat owner. A single dose maintains effective drug levels in the cat's tissues for as long as a week. The correct dose for the use of azithromycin in cats is 5 mg/kg (5 mg of drug for every 2.2 pounds of cat or 2.3 mg per pound of cat).

Because of the persistence of this drug in feline tissues, DO NOT try to translate any protocol given for the use of this drug in humans and try to apply it to your cat. This mistake has been made by numerous veterinarians and pharmacists. DO NOT double the amount of the drug given with the first dose, as is done with humans. This drug should be given as a single dose treatment for minor URI, or once a day for three days in more serious cases. Five days after the first series of three doses, another series of three doses may be given if necessary. For chronic conditions, dosing the cat once or twice a week for extended periods of time may be appropriate.

Elizabeth Hodgkins, DVM feels that the above dosage schedule may be too low for many cats and recommends a dosages schedule of 5-10 mg/kg for six days, with a double dose the first day. Her recommendation: "I generally use 10-20 mg of the suspension per cat (.25-.5 cc of the oral suspension) twice daily for the first day of treatment for cats 3-8 lbs in weight. I then use the same dose once daily for another 6 days straight. In heavier cats, I will use 30-40 mg twice daily for the first day and then once daily for an additional 6 days. I have tried the alternating days dosing as well as the abbreviated (3 day) dosing and have found that these regimes invariably predispose to relapse and prolongation of treatment and clinical signs. I am convinced that, at least in my hands, the protocol described above gives the most consistently positive results in cats with no side effects whatsoever (sound of wood knocking). Also, response is best when the drug is given on an empty stomach and food is withheld for at least an hour after administration."

Another treatment regimen used to prevent early chlamydial infections was developed by an Australian veterinarian. It is comprised on a single dose at 20 mg/kg. [More information about this protocol.](#)

This drug, like any other, must be given carefully and dosed correctly. The instructions below are to be used as a guideline only and should be confirmed by your veterinarian.

The amount of drug (the weight of which is measured in milligrams or "mg") that you administer to a cat is based on the weight of the animal (measured in pounds "lb" or the metric unit kilograms "kg"). Drug doses are, for the most part, given in the units "mg/kg" (the standard unit for drug doses) and may also be translated into "mg/lb" (1kg = 2.2 lb). If a dose is given as "2.3 mg/lb", for example, it means that the cat must receive 2.3 mg of the drug for every pound of the cat's body weight. In order to determine how much of any particular drug in solution, paste, powder, or other form you

must give a cat, you must know how much drug is delivered in a certain volume of product (i.e. the concentration of the solution, amount of drug in each tablet, etc.).

Commercial drug solutions are labeled with the concentration (for instance, 200mg/5mL means that each 5 mL of solution contains 200 mg of drug. A powder, paste, tablet or liquid version of drug is usually comprised of mainly "carrier" (inert substance) with very small amounts of the drug distributed in it. Keep in mind that the drug is not always distributed evenly throughout the product. DO NOT stuff oral suspension powders into little capsules, for example... you have no clue how much of the real drug is getting into those capsules!!

The calculation of how much liquid preparation of a drug to administer to a cat is calculated as given below. The weight of the cat is multiplied by the dose. This figure is then divided by the concentration of the solution in order to give the volume of solution to be administered. WATCH UNITS CAREFULLY, remembering that a solution with a labeled concentration of 200mg/5mL (200 mg in five mLs) must be translated to the equivalent (reduced) term 40mg/mL (40 mg in one mL) to use this formula.

**FORMULA:** Volume of liquid solution to administer (mL) = Weight of cat (lbs) X Dose of drug (mg/lb) divided by Concentration of solution (mg/mL)

**EXAMPLE:** Let's say we are going to dose a cat with the pediatric suspension form of the antibiotic azithromycin. The dose for this drug is 2.3mg/lb (5mg/kg). Our cat weighs nine pounds (4 kg). Our solution container is labeled 200mg/5mL. First, translate the concentration into the units "mg/mL": 200mg in 5mL = 40mg/mL (divide 200 by 5). Now use our formula: Weight of cat (lbs) X dose (mg/lb) is 9 lbs X 2.3 mg/lb. The concentration (mg/mL) is 40mg/mL.

Thus:  $[9\text{lbs} \times 2.3 \text{ mg/lb}] / 40\text{mg/mL} = 0.52 \text{ mL}$

Therefore, for each dose, your nine pound cat needs to receive about 0.5 mL of a solution containing 200mg/5mL azithromycin.

**CAUTION:** If you are at all uncomfortable with the math, DO NOT calculate drug dosages yourself. Mistakes can result in overdosing, underdosing, or even killing your cat. Consult your veterinarian or pharmacist before administering any drug to any cat.

Reconstitute your oral suspension according to package directions. Now examine the syringe you will use to administer the solution to your cat. It is best to use a new and sterile syringe, even when administering drugs by mouth. Use a new syringe for each cat and for each dose. Use a syringe of the appropriate size. If you are administering amounts of 1 mL or less, use a tuberculin or insulin syringe (with the needle removed, of course). Make sure you are comfortable with the markings on your syringes and the volumes they indicate before drawing up the dose of drug. For our purposes, the abbreviations mL and cc are interchangeable.

**CAUTION:** Sometimes a drug will only be available in a form that is difficult to administer to a cat, for instance a large tablet or foul tasting solution. Crushing a tablet and diluting it in a palatable solution or mixing a bitter solution with something more attractive to your cat is an option, but this will affect the stability of the drug. When you dilute a tablet in water or otherwise change the form of the drug, you must administer the appropriate dose immediately and discard the rest. Many drugs become inactive quickly if dissolved into an aqueous solution, unless that solution is carefully formulated with drug stabilizing ingredients. Keep this in mind when purchasing your drugs and deciding between different forms. An inexpensive one gram packet of drug is no bargain if it must be discarded after giving only one dose, compared to a more expensive pediatric solution that is stable in liquid form for the duration of treatment in accordance with the storage conditions listed on the label.

## A NOTE ABOUT AZITHROMYCIN STORAGE

The only appropriate reconstitution instructions and expiration date backed up with DATA for any particular compound is that stated on the label. The expiration date for the powder is printed on the bottle and, once reconstituted, the solution is good for ten days at room temperature. Follow this and you'll always have an azithromycin solution with a potency of at least 95% of what it left the manufacturer at. This is amazingly effective drug, and although it seems wasteful to throw the excess out, curing a cat is certainly worth the \$30-40 one bottle of azithromycin costs. End of story.

HOWEVER. For those of us in the field that generate data for the FDA of this nature, we know what tests the FDA demands and what that translates to in "real life". There is also a mathematic equation that factors in called the Arrhenius equation (this work won the Nobel prize in 1903).

With some basic (and debatable) assumptions, if a solution is stable at room temperature for a week, it is also stable in the refrigerator (approx. 5°C) for 3 months. Because the Arrhenius equation is also lovingly called by stability scientists "the Erroneous equation" (!) combined with the fact that your home refrigerator does not have a temperature and humidity monitoring device on it, I compromise and have been frequently quoted as giving the refrigerated solution of pediatric azithromycin a refrigerated shelf life of one month. An even easier way of handling this drug is to draw up the reconstituted solution into 1 ml syringes and store the syringes in the freezer for up to three months. I think that this is MORE than reasonable based solely on my personal experience with pharmaceutical stability testing and FDA protocols. However, I have NOT done complete stability testing of azithromycin in solution personally.

DO NOT take a "teaspoon of azithromycin and dissolve in X ml of water". The powder in the container does NOT have drug distributed evenly throughout it. Reconstitute the **WHOLE THING** and draw up into syringes to ensure that your cat gets an **ACCURATE** dose of medication. Packing powder into capsules is also not an accurate way to dose your cat with azithromycin.

This is a very viscous solution and should be brought to room temperature and **MIXED WELL** before dosing if you are refrigerating the whole bottle. Mark the reconstituted bottle with the date so you can keep track of the actual time it has been "on the clock". Enter the bottle **ONLY** with a new **sterile** syringe, not just a washed one.

The stability of the dry powder is a even "fuzzier" area. For the most part, powdered drugs are **VERY** stable if labelled for room temperature storage for periods of one year or greater. Often the final expiration date is based more on marketing goals and how long a company chose to wait to release their first three batches of product than on real science.

The thing to remember is that with few exceptions (**BUT THERE ARE EXCEPTIONS!!**), a drug doesn't suddenly become worthless the day after the date on the bottle. It degrades slowly and that degradation is a function of the temperature the solution is stored at and the degree of sterility maintained. Keep all your "room temperature" drugs at **COOL** room temperature and return refrigerated drugs to the refrigerator immediately after using them. Maintain sterility in the container to the greatest degree possible.

Some drugs degrade into toxic substances if kept *\*long\** after their expiration dates or stored incorrectly. The safest route is to simply follow the package directions. But "fudging a little" is often an economic reality, especially with expensive drugs like azithromycin. Each person must determine the risks of outdated or improperly reconstituted solutions vs. the costs/availability of these drugs for themselves.

If you have any questions, contact [Lorraine Shelton](mailto:Lorraine.Shelton@earthlink.net) at featherland@earthlink.net

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--- In fanciershealth@yahoogroups.com, "Lorraine Shelton"  
<Lorraine@f...> wrote:

>> What is Zithromax typically used for?

Azithromycin is commonly used for the treatment of upper respiratory infections in cats and select other infections. It has been successfully used in cases of bordetella and chlamydia and to fight off secondary bacterial and mycoplasmal infections in calicivirus and herpesvirus infections.

>> How often do you give the listed dose & for how long?

This drug is cleared more slowly from cat tissue than from human tissue, so dosing can be done every other day, although some vets state better success with daily dosing or with pulse dosing at levels greater than that previously given.

The drug has a wide margin of safety and can be safely used in young kittens and pregnant queens (although NOTHING should be used in pregnancy unless absolutely necessary!).

Treatment should continue past the time that symptoms resolve. Ten days is typically used for uncomplicated infections, however for chronic, resistant URI once or twice a week treatment for many months has been used successfully. In very young kittens (10-21 days old) with eye infections, I have found a single dose to be adequate.

--Lorraine

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