

SUBCUTANEOUS FLUID ADMINISTRATION

Administration of supplemental fluids can benefit pets with a variety of medical conditions. Most commonly, this is recommended for dogs and cats with kidney disease, bladder disease or pancreatitis. These patients need extra fluids beyond what they drink to wash dangerous renal toxins through their systems. Sometimes a sick patient will not reliably drink enough water and extra fluid administration is required, or perhaps an oral injury may preclude drinking and thus extra fluids are needed.

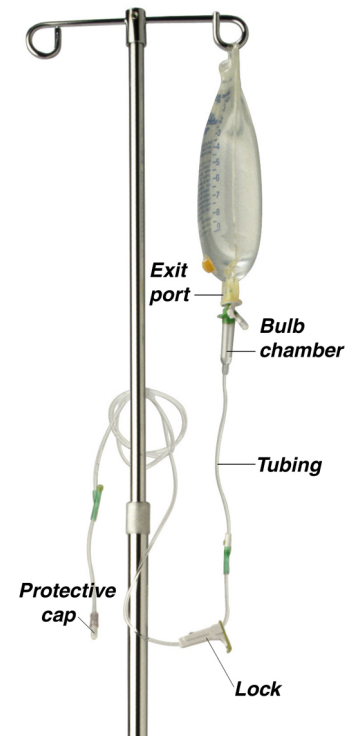
We recommend that you learn this technique for your pet, and you should be given a demonstration of how to give fluids under the skin, if you have not already. Don't be alarmed - it is normal to feel reluctance about administering any treatment, especially those that involve a needle ☺. Giving injections is outside the comfort zone for almost anyone outside the medical professions, at least until they do it a few times. However, subcutaneous fluid administration is not nearly as difficult or intimidating as it sounds. The benefits provided to your pet will make it well worth your time to learn this simple technique.

What equipment is involved?

The equipment consists of a bag of fluids, a fluid drip set, and a needle.

Bag of fluids. Fluids generally come in one-liter plastic bags which have demarcations printed on the side every 50-100cc. Be sure you know how much fluid to administer and where on the bag the desired level at the end of administration will be. If you like, ask the technician to mark the bag in pen.

Fluid drip set. The drip set is the long plastic tubing that connects the fluid bag to the needle. Drip sets come in different sizes according to drop size. For efficient fluid administration, you want 10-20 drops per cc. There will be a small clamp of some kind on the fluid line that will enable you to open and close the line – sometimes there is more than one. The drip set will have a small chamber towards the top where you can see how fast the fluids are running, called the drip chamber. You will want the fluids to run as fast as possible so as to finish the task quickly. If the chamber completely fills with fluid, you will not be able to see the drip flow. To remedy this problem, turn the drip chamber and attached line and fluid bag upside down, squeeze the chamber slightly to allow some air into the chamber, turn the set right side up and open the flow to expel air from the fluid line.



Needles. Needles are color coded according to the bore size of the needle. The higher the number, the smaller the needle bore. Most fluids are administered with 20 gauge (usually pink) or 18 gauge (usually green) needles. The smaller bore needles are less painful to your pet; however, the fluids flow will be slower. The larger bore needles produce a faster fluid administration but are sometimes more objectionable to the patient. As you refill your needle prescription, you may wish to experiment with different sizes to see what seems to work best for you and your pet. 18g (green) is my favorite.

Most garbage pick-up services allow you to place sharps such as needles in a thick plastic container (such as the type liquid laundry detergent comes in, or a coffee can with the lid duct taped on) and discard the entire container in the regular trash. If you have any questions about whether this is OK in your area, please call your sanitation service. If there are any problems disposing of your sharps at home, please bring them to the veterinary clinic, and we can take care of it for you.

How do you assemble the equipment?

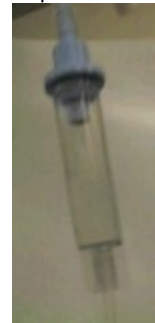
You will eventually become comfortable with the steps involved.

1. Remove the intravenous fluid bag and the fluid drip set from their protective packaging.
2. Close the line lock in the middle of the fluid tubing, by moving the roller. The roller lock on a new fluid set is often already in the open position.
3. The top end of the fluid bag has a large, pointed end with a protective cap. Remove this cap, but do not allow it to become contaminated. **IT SHOULD NOT TOUCH ANYTHING.**
4. Pull the protective covering from the exit port on the bottom end of the fluid bag. This will expose a hole that will accept the pointed end of the fluid set.
5. Push the pointed end of the fluid set into the rubber receptacle of the fluid bag, being careful not to pierce the neck of the receptacle with the point of the IV set – if this happens, the whole thing must be discarded. The IV set must be seated firmly to prevent leaks. Once you do this, do not disconnect the IV set from the bag, or the bag will become contaminated and all the fluid will run out quickly.
6. Gently squeeze and release the bulb drip chamber at the top of the drip set until the chamber is about half full with fluid. If you over fill it, turn the chamber upside down and squeeze, then let air back into the chamber.
7. Remove the protective cap from the lower end of the fluid set, but do not discard it. **Do not allow it to become contaminated. THE TIP OF THE FLUID SET AND THE INSIDE OF THE CAP SHOULD NOT TOUCH ANYTHING.**
8. Suspend the fluid bag from a hook (a coat hanger on a curtain rod works well), and open the roller lock on the IV line; fluid should flow freely. Fill the fluid line with fluid from the bag, until it begins to come out the end. Be sure that all air bubbles run out of the tubing.
9. Once the fluid line is full, close the lock on the fluid line by rolling the roller downward.
10. Replace the protective cap on the lower end of the fluid set.
11. Break the protective covering around the needle (if the needle is in paper) or remove the clear cap (if the needle has a plastic hub cap) so that the open end (not the sharp end) is exposed. Do not allow the needle hub to become contaminated by allowing it to touch **ANYTHING.**
12. Remove the protective cap from the lower end of the fluid set, and place the open hub end of the needle on it. Seat it firmly, and screw on the luer lock if there is one. Discard the protective hub cap to the needle and the IV fluid tubing.

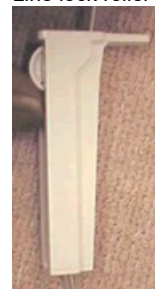
Attaching the drip set



Drip chamber



Line lock roller



Sites to insert the needle

How is the needle placed?

Insert the needle under the skin in one of several locations that have unusually loose skin. These include:

1. At the level of the shoulder blades, just to the right and to the left of midline, or on the midline.
2. On the topline between the shoulders.

What is the correct technique?

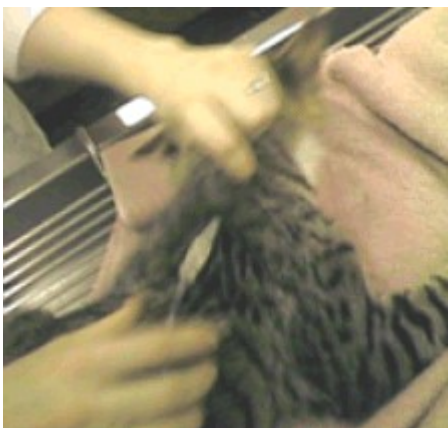
Choose a comfortable location where you will treat your pet. This may be on a table, countertop, or on your lap.



Sites to insert the needle



1. Hang the fluid bag about 3 feet (1 meter) above the level of your pet's head. A clothes hanger on a curtain rod or towel rack can work well.
2. Place your pet in the treatment location. Be sure both of you are in a position that will be comfortable for about 10-15 minutes. The end of the fluid set should easily reach your dog, and you should be able to reach the line lock.
3. Pick up a roll of loose skin in one of the above locations. Note that a "triangle" is formed in the skin, with its base at the body wall.
4. Remove the needle cap and put it in a safe place that you can reach. Lay the point of the needle at the base of the roll of skin with the needle horizontal and pointing to the pet's head. This assumes that the pet is in an upright, sitting or standing position.



become second nature. If the needle has gone through the skin and out the other side, a stream of fluid will be seen coming from the patient's



skin. If this occurs, simply pull the needle slightly back toward you but not all the way out so that the needle will again be positioned under the skin. If this is too difficult, simply close the drip set clamp and try again.

6. Grasp the fluid set lock in one hand. Begin the flow of fluids by rolling the roller upward. You should be able to let go of the needle without any danger of it coming out, though you may need to support the tubing so it does not pull the needle out as your pet shifts his/her weight or moves a little.

NOTE: Some pets are more cooperative if they are placed in a box not much larger than the dog, like a laundry basket, the bottom of a pet carrier with the top removed, or something of that nature. Alternatively, some pets respond well to being held in a towel, often covering their head during the procedure. Experiment with different locations and techniques until you find the most comfortable technique for you and your pet. It can work well for one person to gently hold the pet and comfort them, and another to administer the fluids.

How much fluid should I give each time?

The instructions at the end of this handout tell how much to give for your specific situation, and how often. If you are using two spots, you should give half of that amount in each location. If your pet becomes fidgety during fluid administration, it might be time to move to another spot.

When you have given the prescribed amount, complete the following steps:

1. Stop the flow of fluids by rolling the roller in the fluid set lock downward firmly. If you do not close it well and the bag is left hanging, fluid will run out.
2. Remove the needle from the skin and replace its protective cap.
3. PLACE A NEW, STERILE NEEDLE ON THE DRIP SET AS SOON AS YOU ARE THROUGH. This keeps bacteria that were picked up on the old needle from migrating into the fluids. If you wish, you may return it to our hospital for proper disposal.
4. Put some gentle pressure on the needle site for a minute or so. Do not be alarmed if some of the fluid drips out before it seals.
5. Store the equipment in a safe place until the next fluid administration.

What other tips do I need to know?

It is usually not necessary to "sterilize" the skin with alcohol before inserting the needle. In reality, wiping a little alcohol on the skin does not really sterilize it, and the odor and feel of alcohol may aggravate your pet. If they lick it, many pets will taste the alcohol and begin to drool profusely.

Most pets tolerate fluid administration quite well. However, if the fluids are unusually cold or hot, they may be uncomfortable. Ideally, they should be stored at about body temperature. However, as long as they are at room temperature most pets are fine. Do not refrigerate the fluids unless instructed to do so.

As the fluids are running, a lump will form under the skin. Do not be alarmed; this is the pocket of fluid that will be absorbed over several hours. If absorption is slow, gravity may cause the fluids to migrate downward, causing the tissue in the armpits or under the belly or groin to become jelly-like. However, if this happens, they will still be absorbed. If the tissues on the underside of your pet are still jelly-like when it is time to administer the next volume of fluid,

please notify your vet – it may mean dose and/or frequency of fluid administration needs to be decreased.

There is no problem if a few small bubbles of air are injected under the skin. If quite a bit of air gets under the skin, you may feel a crackling when you push on the skin, and your dog may experience mild discomfort for a couple of hours, but no real harm will occur. The body will eventually absorb the air.

WHAT TO DO IF THE FLUIDS STOP RUNNING DURING ADMINISTRATION

If the drip rate in the drip chamber becomes very slow or stops, you know this has happened. The drip rate in the drip chamber should be very fast – too fast to count is ideal. Flow can stop or slow when the end of the needle moves up against the skin or the underlying tissue. Instead of removing the needle, gently reposition it until the fluids begin to flow again. Experiment gently with the needle's position until the fluids flow freely. Twisting the needle will change the position of the bevel as well, and this may be all that is needed. The higher you hang the fluid bag, the faster it will run.

WHAT TO DO IF THE FLUID RUNS SLOWLY ON SUBSEQUENT TREATMENTS

When you are finished giving fluids, you should close the lock firmly. However, closing the lock too firmly may crush the tubing so that fluid will not flow well on subsequent use. If this happens, move the lock to another place on the fluid tubing, and open the crushed area of the tube by pinching it with your fingers, to remove the flat spot.

WHAT TO DO IF THE FLUIDS BECOME CLOUDY IN APPEARANCE

If any cloudiness or discoloration occurs, do not use the bag. It usually means that the fluids have become contaminated with bacteria, despite your best efforts. If you administer these fluids to your pet, a serious infection may occur under the skin.

SPECIFIC INSTRUCTIONS FOR YOUR PET

1. Give _____ ml of fluids at each treatment.
2. Treat your pet every _____ days or _____ times per week.

References:

Ernest Ward, DVM, Lifelearn Inc.
Wendy Blount, DVM, PracticalVetMed
Wendy Brooks DVM, ABVP, VeterinaryPartner.com