

Detailed instructions on fluid administration

Equipment

Essential equipment for administering subcutaneous fluids includes:

1. Fluid bag (note - never use fluids if they appear cloudy or discolored; fluids with medications or vitamins added will be yellow to orange in color, but not cloudy)
2. Giving/Administration set – also called an IV line
3. Needles – usually 18 gauge

All equipment is sterile and should be supplied in sealed wrappers – these should not be opened until they are to be used. The fluid bag may have been removed from its outer wrapper if medications or vitamins were added at the clinic by Dr. Tina.

Fluid bag

It is helpful to warm the bag of fluids by immersing it in a bowl of warm tap water for 5-10 minutes. Warming the fluids (to make them lukewarm) helps reduce any irritation for the pet. A part-used bag of fluids can be warmed by immersing the bag in warm tap water, but keeping the 'giving port' and attached drip set out of the water.

Do NOT heat the bag in the microwave. Do NOT put in water heated on the stove.

A new bag of fluids usually comes sealed in an outer bag, which needs to be removed. At one end of the bag there will be two 'ports':

- An injection port for adding solutions/drugs to the fluids – you will not need to use this unless instructed by your vet
- An administration, 'giving' or 'spike port' - this usually has a blue, green or white plastic cover on it that will need to be pulled off.

Giving set



The giving set (drip set or IV line) is a long length of plastic tubing that will need to be removed from its plastic wrapping. At one end there is a plastic 'drip' chamber and a white spike (shielded by a removable cover). The other end (also protected by a cover) is where the needle is attached (see later).

The giving tube passes through a plastic roller clamp (enlarged photo above on right) that serves to regulate the flow of fluids. This should be rolled down initially so that the tubing is tightly clamped to prevent fluid flowing through the tubing. There may also be a flat 'pinch clamp' (blue item in above photo) that also stops any fluid flowing.

Attach the needle



The needle can be opened by peeling apart or breaking the enclosing pack. The 'hub' of the needle needs to be attached to the end of the giving set, but the removable hard plastic cover over the needle itself should be left in place. Most commonly an 18 gauge needle is used (this is the thickness of the needle), 1 inch in length.

The cover should be removed from the end of the giving set, and inserted firmly into the hub of the needle. Usually the needle hub has to be screwed into the end of the giving set in a clockwise direction, providing a secure attachment. Neither the hub of the needle, (especially the inner part) nor the protected end of the giving set should be touched during this process to make sure they do not get contaminated.

Attaching and priming the giving set



Once the clamps have been applied, the cover over the white spike can be removed. Avoid touching the white spike to prevent it being contaminated. The spike is then inserted into the giving port of the fluid bag - this should be done straight on to avoid puncturing the bag. It takes firm pressure to insert the spike.



Once the giving set has been attached to the fluid bag, the bag should be hung on any suitable hook (above the height of the pet) using the plastic tab at the top of the bag. Once the bag is suspended, the drip chamber needs to be 'primed' – the chamber needs to be half filled with fluid, which is achieved by gently squeezing and releasing the sides of the chamber (note: make sure the clamps on the drip line are closed while this is being done).

Once the drip chamber is primed, the tubing also needs to be primed (filled with fluids), to remove all the air before it is used. Holding the needle end of the line over a sink or bowl, remove the needle cap. Do not touch the metal part of the needle. With the fluid bag still suspended, the pinch clamp (if present) should be released, and then the roller clamp should be gradually released to allow a slow flow of the fluids through the tubing, and out of the needle. If fluid does not flow, the roller clamp may have temporarily flattened the tubing. With the roller clamp rolled all the way open, slide the entire roller assembly along the tubing a few inches. With your fingers, feel for any flattened tubing where the assembly was and pinch it gently to open the tubing. You will see a steady flow of drips in the drip chamber, and you will see the fluid gradually filling the tubing. Run fluid through the tubing until all the air and bubbles are removed, and fluid is emerging from the needle at the end. When done, use the roller clamp to seal the tubing again and prevent any further flow of fluids. You may recap the needle now if needed or proceed directly to giving fluids to your pet.

Giving the fluids to your pet

Everything is now ready for you to give fluids to your pet. It is not necessary to prepare the skin where the needle is going to be inserted.

The fluid bag should remain suspended above where your pet will be sitting. The higher the bag hangs, the quicker the fluids will be administered. It is also important to have the cat or dog in a comfortable

position – being cuddled on your lap, or sitting beside you on the couch would be ideal. Make it as stress-free as possible for your pet by feeding or offering your pet special treats during the procedure.



The plastic cap should be removed from the needle (by pulling it off, but be careful not to poke yourself with the needle!). One hand should hold the needle at the hub (avoid touching the needle itself which would contaminate it). With the fingers of the other hand, the cat's scruff (the skin between the shoulder blades) should be lifted to form a 'tent'. The needle should be inserted gently and smoothly into the tent that has been formed, keeping the needle parallel with the cat's back, so that the tip of the needle is lying in the subcutaneous space. It may be easier to place the tip of the needle next to the skin and then 'pull the skin over the needle' rather than 'push the needle through the skin'. I often recommend the "3-finger technique": pull up the skin with your thumb, index and middle fingers, squeeze hard and insert the needle very close to your squeezing finger in an approximately 20–45 degree angle.

Once the needle is in place, the skin can be released, but you may need to hold the end of the drip set to keep the needle securely under the skin. It may also help to insert the needle to one side of the mid-line slightly so that the fluid accumulates on the left or right side – this is especially useful if quite large volumes of fluid need to be given, as the needle can be repositioned (removed and re-inserted if necessary) to give half the fluids on each side (Dr. Tina will tell you if this is needed).

The clamps on the giving set now need to be fully opened to allow the fluid to flow as quickly as possible. If the fluids are not flowing at a steady, fast rate (continuous flow seen in the drip chamber) you may need to either try slightly repositioning or tilting the needle and/or raise the bag of fluids to a higher level. Moving the roller clamp assembly along the line will allow you to check for a portion of the tubing that has been flattened by the wheel in the roller clamp. Pinch the tubing where it is flattened to open it.

If the needle has been put straight through the skin (this is quite easy to do and a common mistake!) the pet's fur will become wet immediately when you open the clamps and it will be obvious the fluid is not going into the sub-cutaneous space. If this occurs, simply close the clamp, remove the needle from the skin, replace it with a new one, and repeat the procedure.

Dr. Tina will tell you how much fluid to give. If the rate of flow of the fluid slows, again repositioning of the needle and/or raising of the bag of fluids should be tried. When the required amount has been given, the clamps on the giving set should be applied again to stop the flow of fluid, and the needle gently pulled from the skin. Your pet can then be treated as normal, and the fluids will usually be absorbed during the next few hours. There may be a small amount of fluid oozing out from the site where the needle went through the skin – this is quite normal. Cover the hole left by the needle with a piece of cotton for 1 minute to minimize the fluid loss. There may be quite a large lump where the fluid has accumulated under the skin. This can be massaged gently to help disperse the fluid.

Make sure the cap is replaced over the needle after removing it from the skin. A new needle should be used each time fluids are given.

In between each episode of fluid administration, the part-used fluid bag, giving line and needle (all still attached) are best stored in the fridge in a clean, new plastic bag. The whole system should be allowed to warm to room temperature for at least 1-2 hours before each use or better, place the fluid bag in lukewarm/hand warm water for 5-10 minutes.

One giving set can be used for 2-3 fluid bags if you finish a fluid bag within 7-10 days. If you use one fluid bag for longer than 7-10 days, it is best to replace the giving set with each fluid bag. Old needles should be placed in a plastic screw-top bottle, and can be thrown in the trash or returned to the clinic.

Complications of fluid administration

Complications are actually very uncommon, but if there is anything you are concerned about, seek advice from Dr. Tina without delay. If your pet develops a persistent swelling at the site of injection, and especially if this becomes hard, warm and painful, this could indicate some local infection (abscess) that will require treatment.

Giving fluids that are too hot can lead to burns.

If a pet has a severe inflammatory disease (e.g. severe pancreatitis or Systemic Inflammatory Response Syndrome) subcutaneous fluids can lead to an inflammatory response at the administration site. Intravenous fluids have to be used instead.

The Clothes Peg (Clothes Pin) Trick

If your cat wriggles or gets stressed during sub-Qs, you can try the clothes peg (clothes pin) trick: this is a form of acupressure recommended by an acupuncturist vet back in 2000. Here, Sassy models this trick. Sassy was not a particularly placid cat, but this method enabled Joan to give Sassy fluids successfully and with much less stress for either of them.

Be sure to "clip the kitty" when he or she is calm, and before you begin the sub-Qs. It won't work once the cat is upset and squirming to get away.

You take standard wooden clothes pegs (clothes pins), and clip the scruff of the cat's neck starting at the back of the skull where the skin is loose.



You attach three clothes pegs side-by-side to form a "ridge" down the center of the back of the neck. Some cats might need to have as many as six clothes pegs placed there for it to be effective. It looks just like a "kitty mohawk" when done properly.

This is what it looks like from the side. The clothes pegs can pinch if you don't clip enough skin in the teeth, so make sure you have enough skin in them to create pressure, but not to hurt the cat. Most cats should relax quite a bit within a few minutes - some even lie on their side.

You can then give the sub-Qs lower down. Once you've finished the sub-Qs, you can remove the clips, and the cat should be fully alert within a few minutes.



Eight years after I first mentioned this technique, a study was published, [Pinch-induced behavioral inhibition \('clipnosis'\) in domestic cats](#) (2008) Pozza ME, Stella JL, Chappuis-Gagnon AC, Wagner SO, Buffington CA *Journal of Feline Medicine & Surgery* **10(1)** pp82-7 which concluded that "PIBI was useful for gentle restraint in most cats."