

# IV Fluid Therapy Set Up



## Disclaimer

A series of booklets has been developed by the Clinical Skills Lab team (staff, recent graduates and students) from the School of Veterinary Sciences, University of Bristol, UK. Please note:

- Each booklet illustrates one way to perform a skill and it is acknowledged that there are often other approaches. Before using the booklets students should check with their university or college whether the approach illustrated is acceptable in their context or whether an alternative method should be used.
- The booklets are made available in good faith and may be subject to changes.
- In using these booklets you must adopt safe working procedures and take your own risk assessments, checked by your university, college etc. The University of Bristol will not be liable for any loss or damage resulting from failure to adhere to such practices.

This work is under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.



© The University of Bristol, 2017



University of  
**BRISTOL**

Year Group: BVSc3 +



### Equipment for this station:

- Dog model (or limb) set up for IV fluid therapy
- T connector
- Giving set
- Fluid bag
- Bucket
- Incontinence sheet
- Artery forceps
- 2ml syringe
- 50ml syringe

### Considerations for this station:

- Giving sets, T connectors and fluid bags will be reused as they are expensive; do not throw them away
- DO NOT remove the catheter from the model
- Ensure the fluid bag is clamped with artery forceps when you finish
- Try to catch all the fluid with a kidney dish/bucket and an incontinence sheet; clean up any spillages
- If the fluid bag is nearly empty use a 50ml syringe to refill it with water
- Needles must be disposed of in a sharps bin
- Refer to the instruction booklet 'CSL-U00 Safe use of Needles'
- Refer to booklet 'CSL\_10 IV Fluid Therapy Calculations' for information on calculating drip rates and some example cases to practise.

Anyone working in the Clinical Skills Lab must agree to abide by the 'CSL\_I00 CSL house rules' & 'CSL\_I02 lab area rules' and must read the 'CSL\_I01 CSL induction'

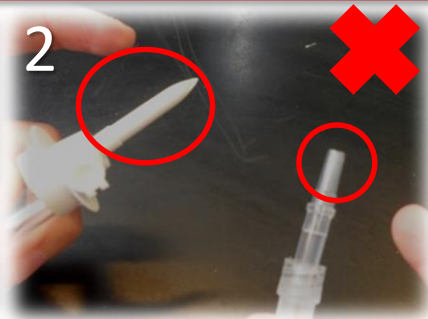
Please inform a member of staff if equipment is damaged or about to run out.



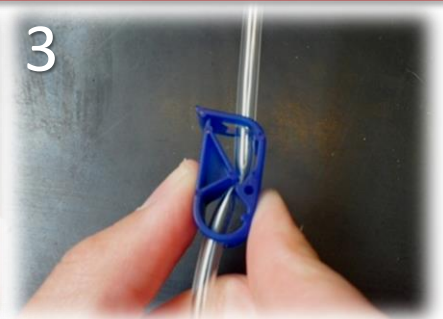
# Clinical Skills: IV Fluid Therapy Set Up



1  
Open the packaging for the fluid bag (*if a fluid bag is not already open and available*). When setting up fluids for live patients, note that once the fluid bag's originally packaging is breached it must not be kept and stored, it must be used immediately.



2  
Open the giving set: Do **not** touch the sterile sections or allow them to come into contact with any non-sterile areas. The sterile sections are the two connection ports at either end of the giving set (circled in red in the photo above). Be aware that one end of the giving set is also sharp.



3  
Some giving sets have a clip, press it until it clicks and shuts off the fluid line, this will prevent flow when the fluid bag is initially connected.



4  
Turn the flow of fluid off by sliding the wheel down to the thinnest part of the wheel cassette.



5  
Open the fluid bag by twisting the upper plastic winged lever. In the Clinical Skills Lab, if the bag has been used (opened) previously then remove the artery forceps to open it. N.B. Fluid bags must not be re-used in real life, once they are open they must be used straight away as they are no longer sterile.



6  
Insert the spiked end of the giving set into the fluid bag via the winged entry port. **It is essential to maintain sterility so take care not to touch the spike of the giving set or the end of the opening on the fluid bag.** The other port has a bung and is for needle access e.g. adding electrolytes.



# Clinical Skills: IV Fluid Therapy Set Up



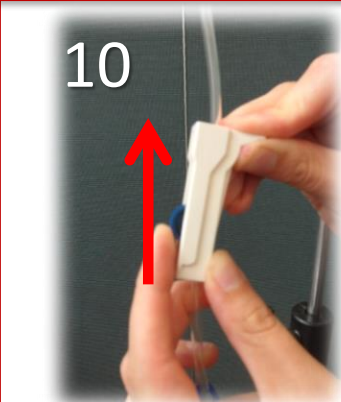
7  
Make sure the spike is inserted as far as it will go - up to the raised ridge.  
Twist back and forwards to ease the spike into the port.



8  
Hang the fluid bag on a drip stand. Make sure the free end of the giving set (in the red circle in the photo above) does not touch a non-sterile surface – arrange it so it hangs in mid-air. The protective cap should also be left in place on the free end of the giving set.



9  
Squeeze the transparent drip chamber until there is about 1.5cm of fluid in the chamber.



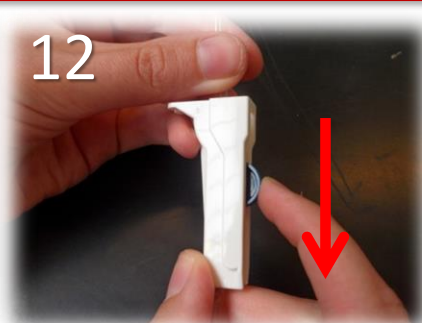
10  
Start the flow of fluid through the giving set by slowly rolling the wheel upwards (and release the clip if one is present – see photo 3 on previous page). The slower the fluid is run through, the less likely it is that there will be air bubbles.



11  
Run the fluid down the entire length of the giving set and out into a bucket, with an incontinence sheet ready to catch splashes.

**Ensure the end of the giving set does not touch the bucket, or any non-sterile surface.**

TIP: To prevent bubbles; run the fluid through slowly. If bubbles occur either flick the fluid line to allow bubbles to float up or run the bubbles out.



12  
Stop the flow of fluid by rolling the wheel down (and closing the clip – if present).

Examine the whole length of the giving set line to make sure there are no large air bubbles present. A few small air bubbles are permissible as they can be very difficult to remove.





# Clinical Skills: IV Fluid Therapy Set Up

13



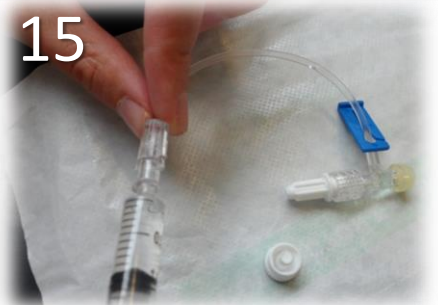
Once again hang the fluid line over the drip stand to prevent any contact of the end of the giving set with non-sterile areas.

14



Take the T connector from its packet and remove the bung from the distal end. **Ensure that you do not touch any of the ends of the T connector as these must remain sterile.**

15



Flush the T connector with water (in the live animal you would use heparin saline) using the 2ml syringe. Make sure the whole connector contains fluid and there are no air bubbles.

16



Use the blue gate to shut off any flow through the T connector and place it all down on a **sterile surface** e.g. on the inside of the T connector packet.

17



Remove the bung from the catheter. Be sure to stabilise the catheter with your thumb and finger when removing the bung.

18



Connect the T connector to the catheter, again stabilising the catheter.



# Clinical Skills: IV Fluid Therapy Set Up

19



Take the bung off the other end of the T connector and then attach the giving set to the T connector. Take care not to touch the sterile areas when attaching the giving set to the T connector.

20



Check that everything is securely attached. Move the gate on the T connector to allow fluid to flow.

Open the blue clip on the fluid giving set (if it has one).

21



Use the wheel on the giving set to allow fluid to slowly flow into the animal.

Signs that the catheter is not in the correct position include:

1. Pain when fluid is turned on
2. A wet bandage
3. The drip not running or running very slowly (if this is the case first try to move the animal's limb in case the vein has become occluded).

22



Note: There are 2 tubes coming from the model, fluid will now run out of one of them. Make sure to catch the fluid in either a bucket or kidney dish.

23



Try altering the drip rate to:

- 20 drops per minute
- 1 drop every 2 seconds
- 1 drop every 8 seconds

In the live animal once satisfied that the drip is running, the T connector would be taped in place and the catheter bandaged in.

Once all the steps for this station are complete:

- Shut off the fluid flow by using the wheel
- Close the gate on the T connector.

For information on calculating drip rates and some example cases to practise, refer to booklet 'CSL\_10 IV Fluid Therapy Calculations'



University of  
BRISTOL

# Resetting the station: IV Fluid Therapy Set Up

1. Turn off the fluid flow by using the wheel on the giving set and also close the gate on the T connector
2. Disconnect the T connector from the catheter
3. Draw air into a 50ml syringe until it is full, attach the syringe to the catheter to flush out any fluid left in the system with air
4. Replace the bung on the catheter
5. Disconnect the T connector from the giving set and replace the bungs
6. Disconnect the giving set from the fluid bag, remember to invert the fluid bag or you will get wet! Replace all bungs on the giving set
7. Use artery forceps to clamp the fluid bag so that it will not leak
8. Place all items in the tray and wipe up any spilt fluid

*Station ready for the next person:*



Please inform a member of staff if equipment is damaged or about to run out.



# I wish I'd known: IV Fluid Therapy Set Up

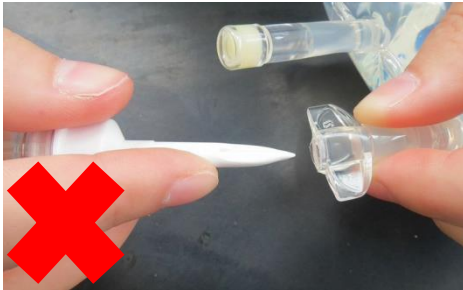
- Make sure you flush through all T connectors and giving sets
- Why is the drip not running?
  - The way the animal is lying, sometimes the cephalic vein becomes temporarily occluded. Gently extend the animal's forelimb.
  - The giving set or T connector could be kinked
  - The plastic clip across the giving set of T connector is closed
  - If using a drip pump there may be a bubble in the line, the drip pump will recognise this and not run the drip. Disconnect the line and flush the bubble out.
  - The catheter may have become disconnected or be perivascular
- What to do if the drip is not running in the live animal:
  - Check for kinks in the line
  - Check for bubbles in the line
  - Flush the T connector with heparin saline – when flushing there should be no resistance if the catheter is in place. If you place your finger over the vein whilst flushing you should be able to feel the fluid going into the vein; if so then try running the drip again.
  - Remove the bandage and check for:
    - a. Signs of infection or inflammation (pain, swelling, heat)
    - b. Fluid going perivascularly or leaking around connectionsIf a or b is found, then the catheter needs removing
- Maintaining sterility is essential. There is a risk of introducing infection and causing phlebitis if sterility is broken in any of the following areas:
  - Either end of the giving set
  - The opening of the fluid bag
  - T connector



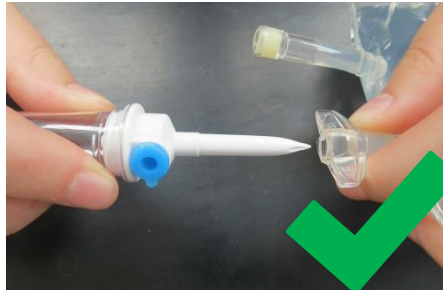


# Incorrect Technique IV Fluid Therapy Set Up

This page is to highlight **INCORRECT** technique. If you make any of the following errors whilst setting up fluids, it is important to recognise them, and ensure that sterility is re-established before continuing.



**Do not** touch the spike of the giving set OR the opening of the fluid entry hole (port) when inserting the spike into the fluid bag.



**Do:** Hold the giving set around the drip chamber and hold the bag away from the edges of the fluid entry hole.

If you touch the spike before it has been placed in the fluid bag, discard that giving set and replace.

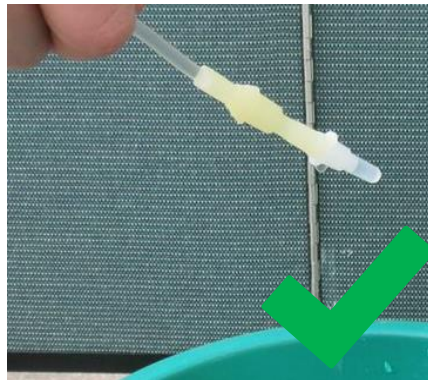
If the contaminated spike has then been inserted into a fluid bag, both the giving set and the fluid bag must be replaced.

If you touch the fluid entry hole before the spike has been inserted, discard that fluid bag and replace.

If the spike has been inserted after the fluid entry hole has been contaminated, both the giving set and the fluid bag must be replaced.

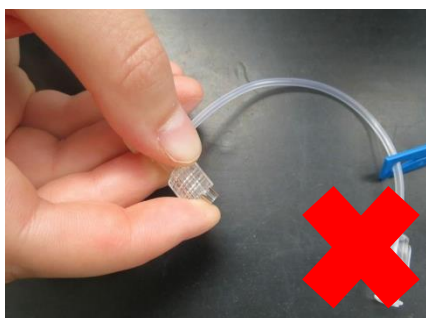


**Do not** allow the free end of the giving set to touch any non-sterile surface, whilst you are running fluids through the line.



**Do:** Always keep the protective cap over the free end of the giving set, until ready to join it to the T connector, and hold the line end while fluids are run through.

If the free sterile end of the giving set touches any surface, the whole giving set must be replaced. Do NOT join a contaminated giving set to a T connector on the patient.



**Do not** touch the sterile end of the T connector



**Do:** Leave the protective cap on the end of the giving set whilst fluids are being run through the T connector. Place the T connector back in its packaging (if opened in a sterile manner)

If you touch the sterile end of the T connector, discard that T connector and replace with a new sterile one. If you attach a contaminated T connector to a catheter in a patient, the catheter and the T connector must be replaced with new, sterile ones.