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# Introducing the Ward Phlebitis Scoring Chart 2018: A reflective and personal practical review and approach

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**ABSTRACT:** It is with interest how I have seen the care, management and review of patients with intravenous catheters (IVCath) over the years. How our attitudes and approaches have (and always will) continue to change as we learn more about the body, the healing process, the dos and the don'ts through our own experiences and learning. There have been a number of articles recently that have highlighted the correct method of placing an IVCath and the management behind this; however, I feel there is a small hole here behind what is considered a patency check over that of a phlebitis check.

**Keywords:** Aseptic technique; catheter patency; infiltration; intravenous catheter; intravenous catheter maintenance; phlebitis

## Introduction

I read an article from the NHS nursing forum which identified a human-focused phlebitis checking methodology for IV catheters (IVCath) and I was immediately hooked for the potential that may be relevant in the veterinary sector.

So, I started to write up a holistic IVCath care plan. Starting with the placement of an IVCath, these were the main principles we would work by, and knowing there are more than 5678 ways of placing an IVCath, as long as you meet these six points then you can place it however it feels most comfortable to you.

1. Patient comfort is our primary goal (**Figures 1 and 2**).
2. Selection of the most appropriate vein to place your IVCath – if operating on the right forelimb, place into the left lateral saphenous and vice versa, i.e. always the opposing side if possible.
3. Use the T-connector/administration set's packaging to help keep your equipment in a clean environment, keeping items all together and ready for use (**Figure 3**).

4. Aseptic placement (with excellent hand hygiene techniques and a sterile cover at the insertion of the cannula being key points).
5. Secure placement of the catheter which allows easy access and change of any attachments should these be required.
6. The entire catheter should be protected by placing a light bandage over it. This should consist of a small layer of Soffban™ (Millpledge) followed by red Wrapz™ (Millpledge). This will act as a visual cue that a catheter is underneath as well as adding a protective layer for the patient.

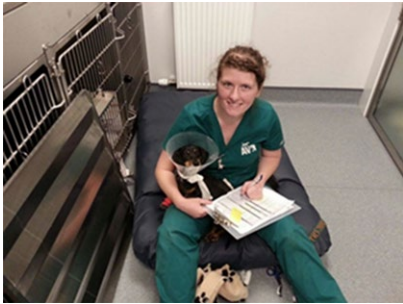
Plus, you will soon learn to spot a red bandage at 20 paces; strategically, it should help prevent any patient leaving the hospital accidentally with an IVCath still in place (**Figures 4–9**). So if a red bandage IS ever seen in the car park – red (excuse the pun) flags and alarm bells should start ringing.

## IV Catheter Nursing Care standard operating procedure (SOP)

This was then further developed into the IV Catheter Nursing Care SOP (see below).



▲ **Figure 1.** With thanks to Debbie Rennie RVN (author's own picture).



▲ **Figure 2.** With thanks to Jillian McHugh RVN (author's own picture).



▲ **Figure 3.** Appropriate management to maintain sterility of the equipment with Lewis Knox RVN and Student Veterinary Nurse Claire Cruickshank preparing for the administration of a cytotoxic drug (author's own picture).

As a rule of thumb, historically it was usually referred to that a catheter would be left in place for three days (or less if problems developed) and then moved to another vein regardless. Evidence- and research-based findings indicate that



▲ **Figure 4.** With thanks to Naomi Wilcox RVN (author's own picture).



▲ **Figure 5.** With thanks to Kirsty Shepherd RVN (author's own picture).



▲ **Figure 6.** Feline patient with an IV catheter in place (author's own picture).



▲ **Figure 7.** Comfort of the IVCath patient is paramount (author's own picture).



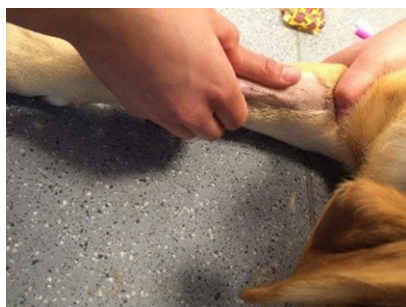
▲ **Figure 8.** Comfort of the IVCath patient is paramount (author's own picture).



▲ **Figure 9.** Rabbit patient sporting a red Wrapz™ bandage over a marginal ear catheter (author's own picture).

relocation is only necessary if there is a visual suggestion of potential phlebitis/infiltration or extravasation (Groll, Davies, Donald & Virani, 2010; INS, 2011).

*Extravasation* is the leakage of intravenously (IV) infused, potentially damaging medications into the extravascular tissue around the site of infusion. The leakage can occur through brittle veins, through previous venepuncture access, or through direct leakage from wrongly positioned venous access devices (**Figures 10–14**). When the leakage is not of harmful consequence it is known as *infiltration*. Extravasation of medication during intravenous therapy is an adverse event related to therapy that, depending on the medication, amount of exposure, and location, has the potential to cause serious injury and permanent harm, such as tissue necrosis. Milder consequences of extravasation include irritation, characterised by signs of pain and inflammation, with the clinical signs of warmth, erythema, or tenderness (Rosenthal, 2007), all of which are indicators adapted within the Ward Phlebitis Scoring Chart 2018.



▲ **Figure 10.** IVCath placement. With thanks to Leanne Barry RVN, whose hands were effectively cleaned with Sterilium using the WHO Hand Rub technique.



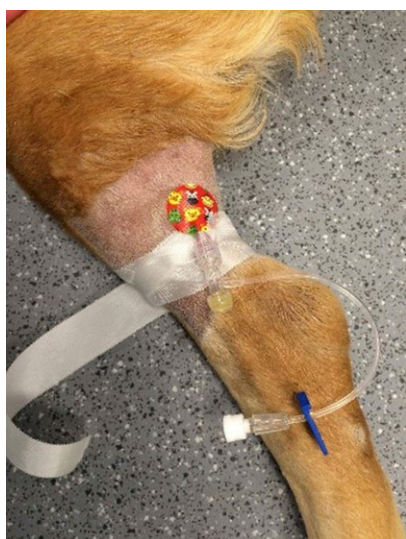
▲ **Figure 13.** Durapore™ (3M) over the top of the catheter and over the hub, placed onto the tape without undue tension being placed onto the tape.



▲ **Figure 11.** IVCath hub secured with Durapore™ and catheter site entry covered with a sterile plaster in an aseptic manner.



▲ **Figure 14.** Red Wrapz™ (Millpledge) is placed as the outer layer and visual identifier that an IVCath is beneath this bandage.



▲ **Figure 12.** A Tro-extensor Hp with T-connector (TROGE, Hamburg) is attached before then placing a thicker strip of Durapore™ underneath, which wraps around and over the top of the T-connector to secure comfortably into place.

So, having adapted the NHS model (Jackson, 1999) slightly to a more usable veterinary scoring system, the following

hub, injection port, or from other infection sites. The potential consequences of catheter-related infections (CR-infections) are serious, so enhanced efforts are needed to reduce the risk of infection to a minimum. A closed system should be used at all times (e.g. port on device if not attached to administration set and clamps closed).

3. Perform the WHO hand hygiene technique: no nail varnish, false nails, plain wedding bands only and no stoned rings. Skin should be intact and healthy – any cuts and abrasions must be covered with secure waterproof dressing or disposable gloves.
4. Patients receiving intravenous therapy must be monitored, with the amounts being administered as well as the output being produced. All observations must be recorded onto the patient's Hospital Care Plan (HCP).
5. When giving an IV medication, the line must be flushed before administration, after administration, and between every consecutive medicine administration to prevent potentially incompatible medicines from mixing in the IV line.
6. Effective flushing, intermittent push pause, and positive pressure techniques are essential to avoid occlusion of the IV catheter. If the catheter does become blocked this will need to be removed and replaced (ideally at an alternative site).
7. Infiltration (non-caustic)/extravasation (caustic) is defined as the inadvertent administration of medication or solution into the surrounding tissue instead of into the intended vascular pathway. The IV catheter site and surrounding area must therefore be monitored. Should infiltration occur, administration of the medicine must be discontinued immediately and the IV catheter removed and replaced.
8. Signs of infiltration may include pain/sensation, a reduced rate of administration, cool to the touch, skin tight, skin discolouration/bruised or swollen, pitting tissue oedema, circulatory impairment.
9. Phlebitis of the peripheral cannula can be identified by observation of pain, redness (erythema), leakage or oedema (refer to Phlebitis Score Chart). Infection may be identified by the above signs and symptoms plus raised body temperature, increased pain and raised inflammatory markers. Blood cultures may be required if body temperature exceeds 40 °C.

SOP was produced along with a need to highlight the difference between what is considered a patency check and what is considered a phlebitis check.

### Standard operating procedure (SOP): IV Catheter Nursing Care

1. All IV catheterisation/cannulation and fluid therapy administration requires the use of an aseptic technique, observing all standard precautions and product sterility.
2. IV catheters may be contaminated by the patient's skin flora at the insertion site or by the introduction of other organisms via the cannula/catheter

- Perform a phlebitis score chart twice daily by removing the outer bandages to assess the IV catheter site and surrounding tissues effectively – record this onto your patient’s HCP.
- As a rule, IV catheters should be used for 3 days and then reviewed for possible relocation if required. If still working well then it can be left, but must be reassessed regularly.

## Discussion

The Ward Phlebitis Scoring Chart 2018 (see **Table 1**) provides us with a measurable tool in assessing our patients’ well-being for their IVCath, which can be completed quickly and easily and incorporated into the patient’s hospital nursing care plan (HNCP) easily (see below). On review with the attending clinician, this can be quickly relayed, covering a period of time of regular reviewing, assessment

and any action that may have been required.

## Step-by-step visual guide for IV catheter placement

While we can all appreciate that we can place an IV catheter in a variety of ways, the main principles remain the same for all techniques (**Figures 10–15**).

- It is placed aseptically.
- It is maintained in an aseptic manner (O’Grady et al., 2011).
- It is comfortable.
- It is secure.
- It is effective.
- It is identifiable from a distance.

**Table 1.** IVCath Nursing Care SOP.

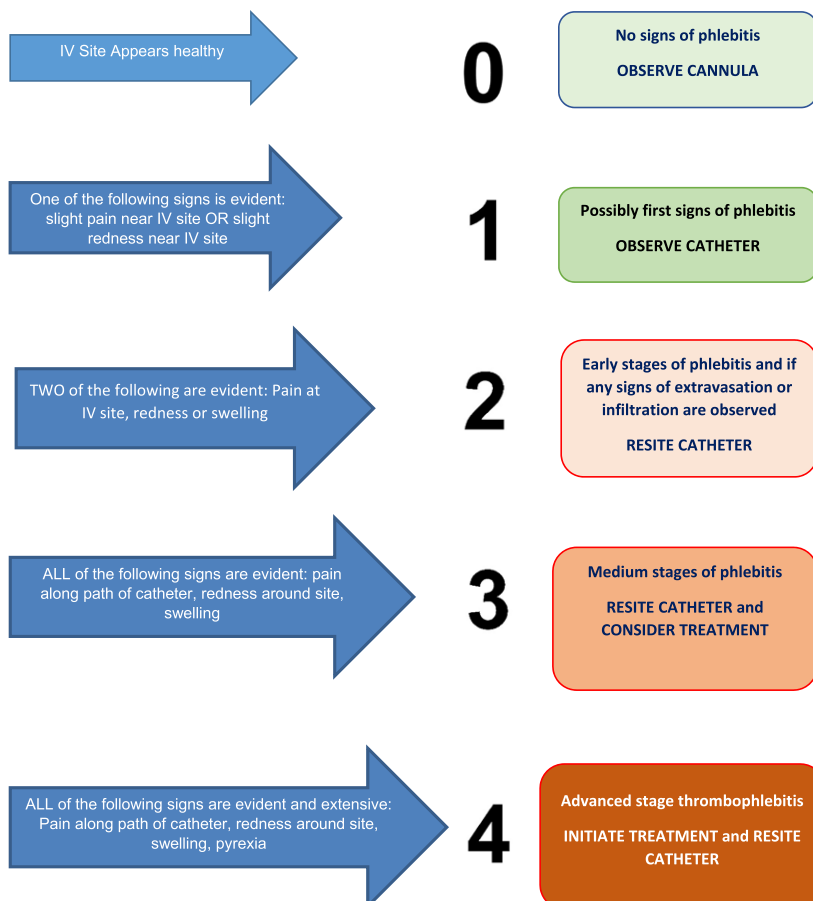
Patency check to be carried out every 4 hours	Phlebitis check to be carried out every 12 hours
<i>If not receiving fluids:</i>	
<ul style="list-style-type: none"> <li>Flush the catheter every 4 hours with sterile saline to ensure continued patency</li> </ul>	<ul style="list-style-type: none"> <li>You will need to remove the bandage to check the actual site of the catheter and to appraise the leg as a whole</li> </ul>
<i>If receiving fluids:</i>	
<ul style="list-style-type: none"> <li>Are the fluids running?</li> <li>If yes, double check around the catheter site/leg area for any signs of extravasation or infiltration</li> <li>If no and receiving crystalloid fluids, remove 2ml from the drip bag and use this to flush the line</li> <li>If no and receiving either a drug infusion or colloid, then draw up 2ml of saline to then flush the line with</li> </ul>	<ul style="list-style-type: none"> <li>Refer to the Ward Phlebitis Scoring Chart 2018 as to what steps you take next (see chart)</li> </ul>

## Using the WPSC

At AVR we carry out a phlebitis scoring every 12 hours, which is incorporated into the patient’s HNCP (see **Figure 16**). The highlighted sections denote that an action is required and once completed is then ticked/initialled and detailed with the evaluated score given by that person. This method makes it very user-friendly by being quick, clear and effective. It allows ongoing evaluations to be given at a glance over longer periods of time while demonstrating that effective patency and phlebitis checks are being carried out on a regular basis. Once the catheter site has been viewed and evaluated, judging on the score being given, action is then taken as per the WPSC.

### Ward Phlebitis Scoring Chart (WPSC) 2018

This example is relevant for assessment of a peripheral cannula. Following assessment, appropriate action should include the recording of your findings onto the patient’s HCP and notification to the VS if scoring 2 or above that may require further actions.



**Figure 15.** WPSC.

**Figure 17** shows a WPSC score of 0, with the IV site looking healthy and no visible signs of inflammation/pain or oedema. **Figure 18** shows a WPSC score of 1 after the cannula had been removed. The patient had started to show slight discomfort with the catheter site with no further evidence of inflammation/oedema.

**Figure 19** demonstrates swelling and pain at the IV site – scoring 2 and requiring resiting of the catheter. **Figure 20** starts to show a case with irritation involved with pain at the site and swelling, while **Figure 21** demonstrates inflammation, oedema, pain at the catheter site as well as an elevated temperature. It is difficult to go by images alone as you are also taking into account the reaction of the patient and direct feeling of the site, but this does start to give you an idea of the progressive signs to be looking out for as part of your evaluation of the catheter site.

Having first started writing my own phlebitis scoring chart, I then discovered other strategies being undertaken elsewhere to





▲ **Figure 21.** Patient demonstrating a Phlebitis Score of 4 (Ward, 2018; author's own picture).

practice use. Therefore, by wanting to take our initial steps with a slightly more simplified method, the use of the WPSC over the past few months has proved easy to use and is now routine in our everyday IVCath care strategies. Areas that Sarah touches upon with the PVCCBC is patient preparation, the materials involved and hand cleaning techniques. These are, of course, are all valuable factors to take into consideration, I just found it more difficult to instil practically, which is why I then went for a more simplified format. We do, however, routinely complete in-house clinical audits in relation to WHO Hand Cleaning techniques – commonly scoring 95–100% effective compliance for the correct pre/post handling of patients when managing sterile sites as well as further audits being carried out involving any infection-related issue seen or treated within the hospital. By watching these surveillance trends and by ensuring compliance to our infection control protocols, I feel this helps to strengthen our ultimate aim in the gold standard of catheter care management.

Although designed as a checklist to be used on every patient with an IV catheter, I did feel more inclined to use the “Peripheral Venous Catheter Care Bundle Checklist” as a clinical auditing tool, which would then further compliment

the more routine use of the WPSC as a continued measurement tool.

## Conclusion

Knowing the difference between your patency checks and your phlebitis checks can only allow you to have more confidence in your nursing and excellence in your patient care. Having a tool to help measure, record, review and plan as a team will provide your patient with the optimum care that we can offer, with the step ahead to identify any potential problems right from their outset so that appropriate actions can be taken immediately and swiftly if needed. Pre-empting and preventing infection along with any other problems that are highlighted from an early stage is by far the ultimate in gold standard in holistic veterinary nursing care.

Having a system which is fast, effective and easy to use will help promote the use of such strategies and understanding for those using it. By making clinical measuring tools less onerous and more efficient, this will help generate more frequent yet informed and confident decision-making from the clinical staff. Identifying what steps should or should not be taken should such findings be found allows the veterinary staff to be more independent in their judgements and care-giving.

NB: Appropriate consent was gained from all of the owners in the use of the patients illustrated within this article, for which I have thanked them for.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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