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## Appendix 2. Key principles of the I-DECIDED® tool and CVI survey respondents' comments

## E = Expert; C = Clinician

## Key principle 1. The presence of an IV device should be assessed each shift.

Post-infusion phlebitis is a rare event. (E4)

All relevant questions (E5)

Difficult to check site if patient has been sent home. (E6)

I am glad you incorporated the assessment of site post removal. This is not a standard practice and should be. (C1)

Not sure the relevance of item Q4 & Q5 in the context of identifying presence of an IV (i.e. although they are relevant it depends on context) - it potentially belongs to other principles. Q4 & Q5 are about identifying absence in the context of potentially infective/inflammatory processes. That said, the questioning of a patient- i.e. the interaction with a patient may include questions in this order. (C6)

48hrs [post-removal] assessment will be difficult with some patients (stoke; capacity to understand etc) 2-3 are also dependent on capacity to feedback (C8)

Check IV device is documented? (C11)

## Key principle 2. The need for the IV device should be assessed each shift.

Would instead assess for need daily instead of every shift which at least in US is not realistic. (E2)

INS standards call for a daily assessment of need rather than each shift. Sometimes it is hard to define a 'shift' as this can be 8 hours or 12 hours. Most American nurses work 12-hour shifts. (E7)

It is the Treating team who will make the decision to switch to orals. The pharmacist could have input but the Treating team is the decider. May not always take on the pharmacist's advice (C7)

Your definition of no longer needed is important. (C8)

Discussions with treating team and/or pharmacist is a BIG workload. Needs to be established by? in conjunction with? treating team (medical team) (C11)

## Key principle 3. Effective flow and flush of the IV device should be assessed each shift.

Flow and flush would be hard to assess unless the person checks the flow and flush themselves. The most important issue is removal. (E4)

Difficult to define a 'shift' as there are a mixture of 3 shifts per 24 hours and 2 shifts per 24 hours. Q15 relevant question but the wording is subjective, what does 'well' mean? (E5)

Due to poor renal function IV antibiotic may be every other day...? Flush or not... need to describe difference between flush and lock. (E6)

Flow and flush is very important but not sufficient by itself. There should be aspiration for a blood return using appropriate technique - slow and gentle, small syringe, and/or a tourniquet above the site. This is critical if the medications are vesicants. Also, this assessment should be before each infusion and not limited to only once per shift. (E7)

I feel there would need to have more assessment prior to removal. What site look like? Is it secure properly? Is the obstructed duty to taping or being kinked? Is it leaking at the site? (C1)

No use having a cannula if it is not meeting the most basic design parameter. (C4)

Q15 would come down to clinical context and how desperate the need for the IV is and how tricky obtaining access is (C6)

Flow well question is a bit ambiguous. May not know if it 'flows' well if no IV infusion. The PIVC should be flushed before anything is administered so flush should be first and if it doesn't flush it is not going to flow. Maybe infusing easily if IV infusion (C7)

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The type of volume; flush rate; and size of PIVC impact on Q13-Q14 (C8)

Clinicians will be confused by flow and flush and why it is separated. We assess for resistance with flushing and free flowing of IV therapy. In oncology we also assess for blood return. (C10)

Q12 & Q13 & Q14 the same? Q15 - move? wiggle? reposition? (C11)

## Key principle 4. The IV site should be assessed for complications or concerns each shift.

Some questions appear to be redundant or overlapping as in swelling/infiltration, redness/hardness induration. These questions could be combined. (E1)

Q25 is likely a dressing issue rather than catheter issue (E2)

Q26 - most clinicians would not necessarily consult team... they would just remove and insert a new IV (E3)

Shifts vary for 8 hours to 12 hours, may need to be more specific (E5)

Not sure how relevant 1cm is? (E6)

These are a little troubling because they imply that pain of level 1 or redness and swelling of 1 cm are acceptable. All changes in color, temperature, any degree of pain is a valid reason to immediately remove the PIVC. Also consultation from the 'treating team' is not necessary. Not sure who this team includes. Any nurse should be capable of assessing these sites, making the decision to remove it if there are any signs or symptoms, remove and assess for the need to insert a new PIVC without consultation by the treatment team. (E7)

I would relook at scoring pain greater than 2. Maybe does patient have pain yes or no? We usually don't provide interventions for pain when using scale unless pain is greater than 5. (C1)

Have graded the pain assessment at a lower value due to subjectiveness of numerical scoring. I would want to drill deeper: e.g. is it because of the site and its tendency to be bumped that is causing the pain? Would an arm board or better dressing help? (C4)

Do you think that the signs need to be signposted for different complications? (C6)

When asking pts about pain in PIVC they think of pain at insertion; specify pain at present time. Do we accept a pain score of 1? Add extravasation with infiltration (C7)

How many attempts they had? Did they did [sic] the clinician was skilled enough; reassured them; understood their fears if any; respected their suggestion where it should go? (C8)

What is a palpable cord? How will the nurse remember all of these components? Condense to red/swollen/painful/Other? (C11)

# Key principle 5. Infection prevention and control practices should be performed each shift.

It seemed that the purulent drainage was a carry-over from the previous section on complications and not part of infection practices. Maybe changing the wording to are there any signs of sepsis/infection? (E1)

Q28 is institution-dependent, may not be relevant; Q34, Q35, Q36 draw blood cultures. Note: Qs and order of questions are different on printed version and electronic version (E2)

Would suggest rewording Q28....to make it more specific to IV. (E3)

Fever and WCC are subsumed under Q36 (E4)

Q30 - needs to be more specific, e.g. before and after each manipulation/access of the device (E5)

Removal of IV if? source of infection... other sources must be considered (E6)

Same comment about shift as previous screen. Not sure what is being asked in Q34. FUO alone is not a reason to remove any VAD. Neither is elevated WBC. Also not sure what is meant by culture IV site - drainage, catheter, blood? Fever and WBC could be from lots of other causes and not the PIVC. Removal depends on many factors such as venous difficulty, length of therapy planned, etc. It is relevant but I would not automatically remove the PIVC under only the conditions listed. (E7)

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I have seen recent presentation on ANTT. If this is recommendation it would require large education for users to under concept, terms and practices. I have mixed feeling related to culturing PIV sites and site removal if pt has fever and positive blood culture. (C1)

Q36 will depend on clinical context (C6)

Q35 and Q36. WCC may be already elevated due to infection and why we have PIVC in. So an increase in Temperature and increase in WCC as to what it was. And think wording in Q36 that PIVC should be considered as possible source of infection and if clinically appropriate remove ASAP (C7)

Has their infusion pump alarmed during the treatment? Have they missed antibiotics/treatment delay? (C8)

WCC elevated is late sign of infection (C10)

ANTT - would they necessarily know what this means??? purulent discharge and Q33 belong in the previous page. Fever/WBC should have been identified by treating team...not nurse? Q36 not relevant to ED (C11)

# Key principle 6. Dressing and securement practice should be assessed each shift.

Q40 not sure if edges of dressing lifting if this is proven to correlate with risk of infection or phlebitis for PIVs (E2)

Q42 - reword? Secure the IV itself? Or the tubing? Could also be extension tubing? (E3)

Q41 should come first. Q42 isn't necessary. (E4)

Q42 - we wouldn't advocate a bandage as they deter staff from observing the insertion site (but we do advocate securement) (E5)

Some of these questions are multiple questions in one... e.g. Securement device, net or bandage... also tube securement and cannula securement are two different questions (E6)

Same shift comment. Also define 'securement' for the PIVC. Is this referring to a completely stable and secure catheter, dressing, and joint if close to a joint? Q42, what type of bandage? Too many variables in this question. Tape alone is not sufficient iMHO. Net is only needed for specific ages or patient populations and bandages should never cover the site. Nurses will not remove it to assess completely. (E7)

You might just need to be certain that the IV site can still be inspected easily and not overly covered with tape etc. (C2)

Secure, dry and not moving and aggravating the vessel wall and venipuncture site => reduced risk of infection and complications. (C4)

Does Q42 need further information- e.g. relevance of being able to see the insertion site? (C6)

Is there evidence of a date on the dressing in the note on informatics? (C8)

Q41 - liked this one. Q42 - repeats (C11)

# Key principle 7. The patient/family's knowledge and education needs should be assessed each shift, if possible.

I'm not sure if it is highly relevant to assess educational needs every shift. (E1)

I think only important that they know to contact nurse if pain, swelling, redness at or near insertion site, so would change wording to be more specific in this regard (E2)

Q46 - educate on complications? Or just in general? (E3)

Q44 - not sure this is relevant each shift, might be setting people up to fail (E5)

Same shift comments. Not sure this is required every 8-hour shift but it is required periodically. I would not tie it to a shift. Shift work equates to common laborers and not the knowledge workers that nurses actually are. (E7)

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I think these questions are vital as we incorporate patients in care. They are their own best advocate and can keep us accountable. (C1)

The best nursing and clinical care is irrelevant if the person cannulated is not on board the narrative. (C4)

I think by assessing and evaluating patient education each shift would not be done. Just continuous education and reinforcement to the patient of how their input is required. (C7)

[Educate] pt/family every shift is excessive. Q46 repeats (C11)

#### Key principle 8. The IV assessment and actions taken should be documented each shift.

Same shift comment. Much more detail is needed, exact site of insertion, gauge size, etc as listed in INS Standards. (E7)

Curious as populate tool be used or if you will have variation for peds and unconscious to align with INS recommendations to check PIV site more frequently. (C1)

Gives the clinician ownership of device management (C4)

Accreditation standards require removal plan. Also nothing noted about insertion in an emergency/or asepsis compromised at insertion may need replacing. (C7)

# The decision to continue or remove the IV device should be based on assessment and consultation with the treating team and the patient.

I would use different wording for Option 2. Something like: IV device should remain in place with securement and dressing replaced. (E1)

If purulent, painful, swollen, etc. then nurse should remove and wouldn't need 'consultation with treating team or patient' but would add need to document in medical record. I think this section should be revised. Does this all go into medical record? Again, for many of these, don't need to consult with patient or team (E2)

Dressing change only done if required. i.e. loose, soiled, coming off (E3)

I think I am missing the point of this screen. Decisions about PIVCs are nursing responsibility and accountability in the USA. No consultation with the treatment team is required before it is removed. Our MD, NP, and PA would think the nurse has lost her mind if a nurse asked them to assess a PIVC site. I strongly believe that all staff nurses must understand when a PIVC is no longer the most appropriate device for a specific patient. These factors then trigger a consultation by the infusion/vascular access nurse for what would be the most appropriate VAD. This recommended VAD may or may not require action by the medical team (MD, NP, PA = LIP in USA) The general staff nurse will not know what is most appropriate and I don't think we should expect them to have this knowledge. But each facility must have a team that can make this assessment. That is not the case in many facilities. (E7)

Great project. Let me know if you want to be a testing site. (C1)

A proactive management approach rather than reactive. (C4)

Are administration set changes covered anywhere? (C6)

I know AVATAR promotes clinically indicated PIVC resiting but this is not what is happening in most facilities so should mention based on Organisational Policy, treating team and patient (C7)

Did the pt want another device type or inserter or method of insertion? (C8)

Very exciting tool indeed (C10)

2 D's??? Q53 - repeats Q56 - 'in consultation...' repeated replaced = PIC/other line??? (C11)