Catherine McAuley School of Nursing and Midwifery
University College Cork
and
Participating Health Service Providers

Peripheral Intravenous Infusion Policy
for

BSc General and BSc Children’s and General (Integrated) Nursing Undergraduate Students

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<tr>
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<td>Agreed at Clinical Practice Committee Meeting</td>
<td>Dr Josephine Hegarty</td>
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Peripheral Intravenous Infusion Policy

BSc General and BSc Children’s and General (Integrated) Nursing Students

1.0 Policy Statement

1.1 It is the policy of University College Cork in conjunction with Health Service Providers and the Health Service Executive (HSE) that only registered nurses (RN) and registered midwives (RM) who have undertaken the necessary education and training are enabled and facilitated to undertake safe administration of intravenous medications (Office of Nursing & Midwifery Services Director, 2013, p.4). Undergraduate nursing and midwifery students are not allowed to administer intravenous medications.

2.0 Purpose

2.1 This policy provides direction toward best practice for both BSc undergraduate nursing students and their educators in relation to what aspects of peripheral intravenous (IV) infusions students may participate and/or engage in during their undergraduate education programme.

3.0 Scope

3.1 This policy applies to BSc undergraduate nursing students who are either supernumerary and/or in their internship year of the BSc programme.

3.2 This policy does not apply to the administration of oral medication, IV medication, transfusion of blood and blood products or Total Parenteral Nutrition or other routes of administration outside of the IV fluids specified in Section 6.2.

3.3 BSc undergraduate nursing students (neither supernumerary nor internship) are not permitted, under any circumstances, to participate in the following activities:
   - The preparation or administration of blood, blood products, Total Parenteral Nutrition (TPN), or IV fluids with electrolytes (added either at ward level or pre-prepared solutions).
   - Double check blood or blood products for IV administration.
   - Flush a peripheral IV device at any stage, either before, during, or after IV fluid administration.
4.0 Legislation / Other Related Policies

4.1 It is expected that each BSc undergraduate nursing student and their educators (preceptors, RGNs, etc.) who are supervising students during clinical placements are familiar with this document, as well as with other national publications by the Nursing and Midwifery Board of Ireland and the Health Service Executive relating to nursing practice, including the following:

- Nursing and Midwifery Board of Ireland (2014) *Code of Professional Conduct and Ethics for Registered Nurses and Registered Midwives*. Nursing and Midwifery Board of Ireland, Dublin.
- Nursing and Midwifery Board of Ireland (NMBI) (2015a) *Scope of Nursing and Midwifery Practice Framework*. Nursing and Midwifery Board of Ireland, Dublin.
- Nursing and Midwifery Board of Ireland (2015b) *Recording Clinical Practice*. Nursing and Midwifery Board of Ireland, Dublin.

4.2 They must also be familiar with and adhere to policy/procedure and guidance documents from their respective Health Service Provider area, in particular local policies for the administration of IV infusion therapy.

5.0 Glossary of Terms and Definitions

5.1 ABA: An Bord Altranais (former name for NMBI)

5.2 ANTT: Aseptic non-touch technique: Aims to prevent pathogenic microorganisms in sufficient quantity to cause infection, from being introduced to susceptible sites by hands, surfaces and equipment.

5.3 BSc Nursing student: Refers to an undergraduate student in General or Children’s and General (Integrated) Nursing programmes who is registered with the School of Nursing and Midwifery, UCC.

5.4 Decontaminate hands: Perform hand hygiene - to protect the patient from harmful germs entering their body during a procedure.

5.5 Direct supervision: The supervisor (RGN, RM), is physically present and observes the procedure/activity.

5.6 Double checking: The process/activity of having a second colleague independently check the preparation of a medication for administration (ABA, 2007). These may include registered nurses, doctors or pharmacists, independently checking the medications.

5.7 Extravasation: An extravasation occurs when there is accidental infiltration of a vesicant or chemotherapeutic drug into the surrounding IV site.
5.8 **Flush**: A flush is a method of clearing intravenous lines, central lines, or arterial lines, of any medicine or other perishable liquids to keep the lines and entry area clean and sterile.

5.9 **Hematoma**: Hematoma is a mass of blood confined to a space in tissue or organ due to a break in a blood vessel.

5.10 **HSP**: Health service provider.

5.11 **Infiltration**: Occurs when fluid infuses into the tissues surrounding the venepuncture site. This sometimes happens when the tip of the catheter slips out of the vein, the catheter passes through the wall of the vein, or the blood vessel wall allows part of the fluid to infuse into the surrounding tissue.

5.12 **Infusion**: Fluid(s) prescribed in accordance with hospital policy and administered in accordance with the individual hospital’s medication administration policy and ABA (2007) guidelines.

5.13 **Internship status**: The student works as a member of the nursing/midwifery team and is an employee of the health service provider (Year 4/5).

5.14 **Intravenous medication**: A pharmaceutic delivered directly into the blood stream via a vein (Mosby’s Medical Dictionary, 2009)

5.15 **NMBI**: Nursing and Midwifery Board of Ireland.

5.16 **Peripheral intravenous infusion**: The instillation into the vein of fluids via a peripheral venous catheter.

5.17 **Peripheral IV devices**: Cannula/catheters inserted into a small peripheral vein for therapeutic purposes such as administration of medications, fluids and/or blood products.

5.18 **Phlebitis**: Swelling, redness, heat, and pain related to local inflammation of the vein at or near the cannula site.

5.19 **Pump**: Refers to infusion pumps e.g. large volume pumps, syringe drivers, patient controlled analgesia (PCA) pumps.

5.20 **Reconstitution**: Refers to adding a diluent (e.g. water for injection) to a drug in solid form (e.g. powder) to form a solution.

5.21 **Supernumerary status**: The student is a participant learner, additional to the scheduled complement of qualified nursing and/or midwifery staff.

5.22 **Vascular access device**: A catheter designed for continuous access to the venous system. Such devices may be required for long-term parenteral feeding or the administration of IV fluids or medications for a period of several days (Mosby’s Medical Dictionary, 2009).
6.0 General Principles of Peripheral IV Management for BSc Nursing Students

6.1 Participation in the preparation and management of IV fluids by BSc undergraduate nursing students should, at all times, be under the direct supervision of a registered nurse/midwife who has successfully completed the required intravenous study day (as prescribed by the respective health service provider (HSP)), and has achieved competence in that practice (successfully completed assessment and supervised practice).

6.2 Participation in the preparation and management of IV fluids via peripheral IV device by nursing students is strictly limited to the following 4 fluids only:

- Normal Saline 0.9%
- Hartmann’s Solution
- Dextrose Saline
- Dextrose 5%

6.3.1 Supernumerary nursing students are not permitted to administer IV fluids/IV preparations.

6.3.2 Supernumerary nursing students who have successfully completed the numeracy assessment in Year 3 (UCC), and received appropriate stamp in their clinical booklet, are permitted to be involved with IV fluids (see 6.2) and as outlined in Appendix 1.

6.3.3 Supernumerary Children’s and General (Integrated) nursing students who have successfully completed the numeracy assessment in Year 3 (UCC), AND their “Double Checking Assessment” (CUH) on internship, are permitted to double check IV fluids in children’s wards – where hospital policy permits.

6.4.1 Internship nursing students are permitted to be involved with IV fluids and IV medications as outlined in Appendix 1. Internship nursing students are not permitted to administer IV medications.

Internship nursing students must be cognisant of, and adhere to the NMBI (2007, p.11) guidelines on double-checking which states that:

“For patient/service-user safety and risk management purposes health service providers may have a policy for double-checking preparations, particularly for those that are considered high-alert medications (such as insulin, heparin and chemotherapy) or that require complex calculations in preparation for administration”.
6.4.2 **Internship** nursing students **are** permitted to recommence and administer the following IV fluids only and **must** be under the direct supervision/presence of a registered nurse/midwife:

- *Normal Saline 0.9%
- *Hartmann’s Solution
- *Dextrose Saline
- *Dextrose 5%

6.5 All preparation and management of peripheral IV infusions by nursing students must, at all times, be in accordance with the respective HSP policies and ABA/NMBI guidance documents.

6.6 **See Appendix 1** for specific detail for BSc undergraduate nursing students (Years 2 to 5) in relation to their education/training in peripheral IV infusions in accordance with level of learning (exposure, participation, identification and internalization).

7.0 **Roles and responsibilities**

7.1 BSc undergraduate nursing students must, at all times, adhere to the conditions of their Practice Placement Agreement (PPA), with particular reference to points 8, 16 and 17 of the PPA.

7.2 BSc undergraduate nursing students (supernumerary and internship) must endeavour to recognise their own limitations and to seek help/support when their level of experience is inadequate to handle a situation relating to peripheral IV infusions (preparation/management).

7.3 BSc undergraduate nursing students must have successfully completed their IV education and numeracy assessment in the School of Nursing and Midwifery UCC *(Year 3)* prior to undertaking IV preparation and management with the 4 specified fluids outlined here:

- *Normal Saline 0.9%
- *Hartmann’s Solution
- *Dextrose Saline
- *Dextrose 5%*

7.5 Registered nurses/midwives are professionally responsible and accountable for their practice, attitudes and actions, including inactions and omissions. The registered nurse or midwife who is delegating (the delegator) is accountable for the decision to delegate. This means that the delegator is accountable for ensuring that the delegated role or activity is appropriate to the level of competence of the BSc undergraduate nursing student to perform (NMBI, 2015a).

7.6 It is the responsibility of the School of Nursing and Midwifery UCC to ensure that all nursing students receive the required education and training regarding peripheral IV infusion preparation and management (Appendix 2), in accordance with this policy.
8.0 School of Nursing and Midwifery UCC Education and Training

8.1 **YEAR 2.** Nursing students (General and Children’s and General (Integrated)) are introduced to pharmacology and the principles of medication management (Appendix 2).

8.2 **YEAR 3.** At the beginning of the 3rd academic year, nursing students are introduced to the principles, preparation and management of peripheral IV infusions. This is a stand-alone peripheral IV management programme specifically designed for BSc students to address the relevant theoretical and practical aspects of peripheral IV infusion therapy including the nursing care and management of IV access devices (Appendix 2).

8.3 Successful completion of the IV management programme (i.e. attendance, participation and numeracy examination) is documented in each student’s clinical competency booklet by the lecturer(s) involved in the assessment process.

8.4 **YEAR 4.** Students complete an IV online numeracy assessment in semester one (Appendix 2).

8.5 Evidence of successful completion of the IV management programme and numeracy examination is essential in order for nursing students to participate in the preparation and management of peripheral IV infusions while on clinical placement.

References


Nursing and Midwifery Board of Ireland (2015a) *Scope of Nursing and Midwifery Practice Framework.* Dublin, Nursing and Midwifery Board of Ireland. [https://www.nmbi.ie/Standards-Guidance/Scope-of-Practice](https://www.nmbi.ie/Standards-Guidance/Scope-of-Practice)


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<thead>
<tr>
<th>YEAR 1 General</th>
<th>YEAR 2 General</th>
<th>YEAR 3 General</th>
<th>YEAR 4 General</th>
<th>YEAR 5 General</th>
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<tr>
<td><strong>Exposure:</strong> This is limited to the nursing student observing a registered nurse/midwife performing the following:</td>
<td><strong>Exposure:</strong> This is limited to the nursing student observing a registered nurse/midwife performing the following:</td>
<td><strong>Participation under direct supervision of a registered nurse/midwife with the following:</strong></td>
<td><strong>Participation under direct supervision of a registered nurse/midwife with the following:</strong></td>
<td><strong>Internalisation</strong></td>
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<tr>
<td>- Peripheral IV related documentation.</td>
<td>- Selection of prescribed IV fluid.</td>
<td>- Selection of one of the 4 specified, prescribed IV fluids.</td>
<td>- Selection of one of the 4 specified, prescribed IV fluids.</td>
<td>- Use of pause function when attending to hygiene, clothes change or elimination needs.</td>
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<tr>
<td>- Change of peripheral IV dressing using ANTT.</td>
<td>- Prime an IV line with prescribed fluid.</td>
<td>- Prime an IV line with one of the 4 specified, prescribed IV fluids only.</td>
<td>- Double check for IV fluids as listed in policy.</td>
<td>- Seek permission to use the pause function when attending to hygiene, clothes change or elimination needs.</td>
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<td>- Removal of peripheral IV cannula.</td>
<td>- Calculate flow rate of IV infusion and adjust using roller clamp or pump as appropriate.</td>
<td>- Calculate flow rate of IV infusion and adjust using roller clamp or pump as appropriate.</td>
<td></td>
<td>- Use of pause function in the event of suspected phlebitis or extravasation and notify a registered nurse/midwife immediately.</td>
</tr>
<tr>
<td>- Selection of prescribed IV fluid.</td>
<td>- Preparation of infusion pump including threading tubing through device, connecting to peripheral IV cannula and commencing infusion.</td>
<td>- Preparation of infusion pump including threading tubing through device, connecting to peripheral IV cannula.</td>
<td>- Preparation of infusion pump including threading tubing through device, connecting to peripheral IV cannula and commencing infusion.</td>
<td>- Use of pause function in the event of suspected phlebitis or extravasation.</td>
</tr>
<tr>
<td>- Prime an IV line with prescribed fluid.</td>
<td>- Troubleshooting of infusion device alarms.</td>
<td>- Troubleshooting of infusion device alarms.</td>
<td>- Troubleshooting of infusion device alarms.</td>
<td>- Use of pause function in the event of suspected phlebitis or extravasation.</td>
</tr>
<tr>
<td>- Calculate flow rate of IV infusion and adjust using roller clamp or pump as appropriate.</td>
<td>- Replace completed IV infusions with prescribed follow-on infusion.</td>
<td>- Replace completed IV infusions with one of the 4 specified, prescribed follow-on infusion.</td>
<td>- Replace completed IV infusions with one of the 4 specified, prescribed follow-on infusion.</td>
<td>- Use of pause function when attending to hygiene, clothes change or elimination needs.</td>
</tr>
<tr>
<td>- Preparation of infusion pump including threading tubing through device, connecting to peripheral IV cannula and commencing infusion.</td>
<td>- Discontinue fluids, disconnect from peripheral IV cannula and dispose appropriately.</td>
<td>- Discontinue fluids, disconnect from peripheral IV cannula and dispose appropriately.</td>
<td>- Discontinue fluids, disconnect from peripheral IV cannula and dispose appropriately.</td>
<td>- Use of pause function when attending to hygiene, clothes change or elimination needs.</td>
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<tr>
<td>- Troubleshooting of IV device alarms.</td>
<td>- Use of pause function when attending to hygiene, clothes change or elimination needs.</td>
<td>- Use of pause function when attending to hygiene, clothes change or elimination needs.</td>
<td>- Use of pause function in the event of suspected phlebitis or extravasation.</td>
<td>- Use of pause function when attending to hygiene, clothes change or elimination needs.</td>
</tr>
<tr>
<td>- Replace completed IV infusions with prescribed follow-on infusion.</td>
<td>- Use of pause function in the event of suspected phlebitis or extravasation.</td>
<td>- Use of pause function in the event of suspected phlebitis or extravasation.</td>
<td>- Use of pause function in the event of suspected phlebitis or extravasation.</td>
<td>- Use of pause function when attending to hygiene, clothes change or elimination needs.</td>
</tr>
<tr>
<td>- Discontinue fluids, disconnect from peripheral IV cannula and dispose appropriately.</td>
<td>- Identification</td>
<td>- Observation and documentation in relation to peripheral IV cannula.</td>
<td>- Change of dressing of peripheral IV cannula using ANTT.</td>
<td>- Identification</td>
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Use of pause function in the event of suspected phlebitis or extravasation.

**Participation under direct supervision of a registered nurse/midwife:**

- Removal of peripheral IV cannula and completion of relevant documentation.

**Supernumerary nursing students are not permitted to press the stop, start button, recommence or administer IV fluids**

- Change of dressing of peripheral IV cannula using ANTT.
- Removal of peripheral IV cannula and completion of relevant documentation.

**Supernumerary nursing students are not permitted to press the stop, start button, recommence or administer IV fluids**

- Observation and documentation in relation to peripheral IV cannula.
- Change of dressing of peripheral IV cannula using ANTT.
- Removal of IV cannula and completion of relevant documentation.
- Double check for IV fluids
- Double check IV medications as per local hospital policy.
- Sign as the “second checker” in accordance with local HSP policy and NMBI double-checking medications guidelines (2007, p.11,12)

https://www.nmbi.ie/nmbi/media/NMBI/Publications/Guidance-Medicines-Management.pdf?ext=.pdf and only under direct supervision or, in the presence of, a registered nurse/midwife.

**Internship students only are permitted to:**

Press the start button to commence/recommence the following IV fluids only and under the direct supervision of a registered nurse/midwife:

- Normal Saline 0.9%
- Hartmann’s Solution
- Dextrose Saline
- Dextrose 5%

Where hospital policy permits
APPENDIX 2
Medication and Intravenous Management Education

for
BSc General and Children’s and General (Integrated) Nursing Students
School of Nursing and Midwifery, UCC

YEAR TWO: NU2003
- Pharmacology and Medication Management for Nurses and Midwives (5 credits)
- Workbook on drug calculations
- Completion of an online drug calculations MCQ (oral and IV medications)
- Completion of HSEland Medicines Management programme

YEAR THREE: ESSENTIAL SKILLS – NU3068, NU3082
- Lecture on IV management (1 hour)
- IV skills workshops: Station 1: Priming an IV line, insertion to cannula (40 mins)
  Station 2: IV cannula care, recognising phlebitis (40 mins)
  Station 3: Using IV pumps (40 mins)
  Station 4: Medication numeracy (40 mins)
- Online numeracy assessment MCQ (30 mins) Pass mark 100%

YEAR FOUR: ESSENTIAL SKILLS – NU4087, NU4084
- Online numeracy assessment MCQ (30 mins) - Pass mark 100%