DISTRIBUTED SIMULATION PROJECT

Peripheral IV Cannulation/Management of IV Fluids and Electrolytes

Merylin Cross, Joy Hills, Judy Spencer | April 2014

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Introduction

This learning resource package provides:

- Learning materials aimed at the individual clinician/student seeking to update his/her skills in peripheral IV cannulation (or venepuncture) and the management of IV therapy, fluid and electrolyte balance.
- A lesson plan and accompanying resources for facilitators to conduct workshops on peripheral IV cannulation and the management of IV fluids and electrolytes.
- Opportunities for clinicians, students and facilitators to introduce, include and practice interprofessional learning in the practice setting.

The package consists of:

- *Peripheral IV cannulation/management of IV fluids and electrolytes* booklet (this one).
- *PowerPoint presentation (including video): Peripheral IV cannulation.*
- *PowerPoint presentation: Management of IV fluids and electrolytes.*
- *Recommended readings: Peripheral IV cannulation/management of IV fluids and electrolytes.*
- *A Guide to Developing Simulated Interprofessional Learning Activities.*

The package is written for:

- Clinicians and students seeking to individually update their skills and knowledge in peripheral IV cannulation and the management of IV therapy and fluid and electrolyte balance.
- Workshop facilitators presenting workshops in peripheral IV cannulation/the management of IV therapy and fluid and electrolyte balance. The package aims to foster interprofessional learning (IPL) where appropriate so recognising the interdisciplinary nature of the modern healthcare workplace.

The material presented incorporates current best-practice. The learning resources and workshop plan were piloted in 2013 and modified where appropriate.

What do you want to do?

Update my skills and knowledge about peripheral IV cannulation/the management of IV fluids and electrolytes:

- Read and watch the material presented in the *Peripheral IV cannulation* and *Management of IV fluids and electrolytes* PowerPoint presentations.
- Read the recommended readings section of this booklet *Peripheral IV cannulation/management of IV fluids and electrolytes: Recommended reading.*

Facilitate a workshop on peripheral IV cannulation/the management of IV fluids and electrolytes:

- Read *Peripheral IV cannulation/management of IV fluids and electrolytes* booklet (this one); use the workshop materials provided at the back of the booklet.
- Use the *Peripheral IV cannulation and management of IV fluids and electrolytes* PowerPoint presentations as the basis for your workshop.
- Read the *Peripheral IV cannulation/management of IV fluids and electrolytes: Recommended reading.*

Learn more about developing simulated interprofessional learning activities:

- Read *A Guide to Developing Simulated Interprofessional Learning Activities.*

Suggest that my workplace hosts a staff development session for staff who want to update their skills in peripheral IV cannulation/management of IV fluids and electrolytes:

The *Learning resource package: Peripheral IV cannulation/management of IV fluids and electrolytes* is an off-the-shelf course specifically aimed at clinicians and students wishing to update their skills.
Workshop Plan

1. Description of the Activity

The peripheral intravenous cannulation skills module comprises a four hour hands-on skills workshop, and direction to additional on-line learning resources, activities and quizzes. The content is framed on the criteria specified in the intravenous cannulation packages in use by the Tasmanian Health Organisations (THOs) and endorsed as a competency by the Tasmanian Department of Health and Human Services (DHHS). The Centre for Rural Health (CRH) does not have the authority to grant competency at these sessions and participants will be required to speak with the relevant health professional at their workplace to discuss ways in which this can be achieved. Simulation is an alternative means for a student/health professional to learn a new skill, or refresh and update an existing skill, and provides practice sessions in a safe environment.

2. Participants

This activity is open to clinical staff employed at the participating health facility. It is open to medical, nursing and allied health professionals and health science students.

3. Simulation/scenarios

The main focus of this session is practicing peripheral IV cannulation or venepuncture. Clinical scenarios may be used to problem solve and trouble-shoot the management of IV therapy and fluid and electrolyte balance from an interprofessional perspective.

4. Learning objectives/outcomes

On completion of this activity, participants should be able to:

1. Describe the basic anatomy and physiology including identifying the superficial veins in the arms and hands relevant to peripheral IV cannulation and venepuncture.
2. Locate and assemble the required equipment for IV cannulation or venepuncture.
3. Perform a successful IV cannulation (or venepuncture) within the Infection Control guidelines and Occupational Health and Safety practices of your organisation.
4. Complete the required legally defensible documentation related to the procedure and management of IV therapy.
5. Demonstrate critical thinking and reasoning relevant to managing the risks and complications of IV cannulation and therapy.
6. Identify patient education requirements relevant to IV therapy.

Interprofessional learning objectives/outcomes

On completion of this activity participants should be able to:

1. Develop a broad evidence-based knowledge of IV cannulation and therapy and respect the contribution of practitioners from other disciplines.
2. Appreciate the benefits of working effectively with people from other disciplines.
3. Communicate appropriately with other members of the health care team.
4. Listen to and evaluate the views of others.
5. Teaching and Learning Methods

- Face-to-face lecture and/or tutorial.
- PowerPoint presentation.
- Video: http://www.youtube.com/watch?v=WvA6LR_g8yQ
- Cannulation Resource package for each THO (North West, North and South), to be sourced from the intranet in each area.
- Simulated learning activity using IV cannulation arm (part task trainer).

6. Activity and Required Equipment

Activity: Simulation-based skills training with IV cannulation arm and artificial blood.

Equipment:
- Part task trainer - IV cannulation arm and artificial blood
- Dressing/IV trolley with sharps container and waste bag
- Dressing pack
- Gloves (sterile)
- Alcoholic chlorhexidine
- Transparent semi-permeable dressing
- Cannula (size depending on need)
- Giving/Extension set (IV fluid for priming line)
- Waterproof protective sheet
- Syringe 10ml with 0.9% Normal Saline
- Tourniquet

Remember you will need to order sufficient equipment for all participants. A distribution of 2-3 participants per arm will allow all participants a chance to visualise and practice the skills in the allotted time.

7. Program (teaching/learning plan)

The workshop program (teaching/learning plan) has been developed as a four hour session that can be held at a time that best suits the organisation and staff scheduling. The introduction includes instructions to participants and an outline of the sequence of events. The learning activities in this workshop are based on principles of adult learning and therefore participants will be required to take an active role in their preparation for the event. Participants are expected to have undertaken pre-reading of the IV cannulation package from their state/regional Health Organisation and have read widely from the selected articles provided.

The teaching and learning plan is discussed further in 3.8, 3.9, and 3.10 of the Guide to Developing Simulated Interprofessional Learning Activities (part of this learning package).
Below is a sample program for a morning or afternoon session.

<table>
<thead>
<tr>
<th>Time</th>
<th>Duration</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>0900 or 1300</td>
<td>1 hour</td>
<td>Introduction PowerPoint presentations (theory underpinning IV cannulation and fluid and electrolyte balance)</td>
</tr>
<tr>
<td>1000 or 1400</td>
<td>15 minutes</td>
<td>Video: IV cannulation</td>
</tr>
<tr>
<td>1015 or 1415</td>
<td>15 minutes</td>
<td>Break</td>
</tr>
<tr>
<td>1030 or 1430</td>
<td>1 hour 45 minutes</td>
<td>Skills Stations 1. Cannulation practice, 2. Inter- professional case-based scenarios.</td>
</tr>
<tr>
<td>1215 or 1615</td>
<td>30 minutes</td>
<td>Debrief and discussion</td>
</tr>
<tr>
<td>1245 or 1645</td>
<td>15 minutes</td>
<td>Evaluation</td>
</tr>
<tr>
<td>1300 or 1700</td>
<td>Finish</td>
<td></td>
</tr>
</tbody>
</table>

Participants will be asked to complete an attendance record so that the organisation can meet formal reporting requirements and also asked to complete an evaluation form to ascertain the relevance and usefulness of the workshop.

8. Debrief

The plus-delta technique (Jolly, Nestel, Sprick, 2012 NHET-Sim program: www.nhet-sim.edu.au) is a simple two-step approach suitable for brief, in-house time-limited situations. This approach to debrief focuses on a) what worked well and b) what needs to be strengthened. It involves brainstorming and recording on a whiteboard/butcher’s paper various behaviours listed in two columns. The plus column is used to identify behaviours and actions that were successful during the simulation and the delta (Greek word for change) column is used to identify and discuss what can be improved and how the actions can be changed in the future (see Fanning & Gaba, 2007, in the Guide to Developing Interprofessional Simulated Learning Activities). A guide to debrief is described in 3.11 of the Guide to Developing Simulated Interprofessional Learning Activities.

9. Assessment of learning

For the purpose of this workshop there will be no formalised assessment. A certificate of attendance will be given to each participant as evidence of Continuing Professional Development (CPD) points. This is discussed further in 3.12 of the Guide to Developing Simulated Interprofessional Learning Activities.

10. Evaluation of learning activity

All learning activities should be evaluated to provide evidence of their effectiveness and to justify the contribution they make to professional development, clinical learning and practice. Each participant will be asked to complete an evaluation form in relation to this workshop. This is discussed further in 3.13 of the Guide to Developing Simulated Interprofessional Learning Activities.
11. Relevant readings


Workshop Resources

These resources are attached on the following pages and are provided as MS Word files on the accompanying DVD. Please customise the materials by making appropriate substitutions where necessary (e.g. date, time, location and facilitators).

1. Sample workshop program (*IVC workshop program.docx*)
2. Sample workshop Certificate of Attendance (*IVC certificate of attendance.docx*)
3. Sample workshop evaluation form (*IVC workshop evaluation.docx*)
4. Sample Attendance Sheet (*IVC attendance sheet.docx*)
Resource 1: Sample Peripheral IV Cannulation workshop program

Facilitator Name ..................... Date ...... Organisation ......................

09.00 – 10.00 Introduction: Theory underpinning IV cannulation, fluid and electrolyte balance
10.00 – 10.15 Video of IV cannulation
10.15 – 10.30 Morning Tea
10.30 – 12.15 Simulated learning on IV cannulation
   Problem-based/case-based scenarios
12.15 – 13.00 Debrief and workshop evaluation

www.utas.edu.au/rural-health
Resource 2: Sample Peripheral IV Cannulation workshop Certificate of Attendance
Resource 3: Sample Peripheral IV Cannulation workshop evaluation form

![Peripheral IV Cannulation Workshop Evaluation Form](image-url)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Unsure</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to the workshop I rated my skill in IV cannulation as excellent</td>
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<tr>
<td>The workshop improved my knowledge and skills of IV cannulation</td>
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<tr>
<td>Following the workshop I can see ways to strengthen my practice in managing clients with peripheral IVs</td>
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<tr>
<td>Following the workshop I feel more knowledgeable and confident about IV cannulation</td>
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<tr>
<td>I feel more confident about detecting complications as they arise and initiating suitable action</td>
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<tr>
<td>I would recommend this workshop to colleagues</td>
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<tr>
<td>The PowerPoint presentation was informative and easy to follow</td>
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<tr>
<td>The presenter was knowledgeable and informative</td>
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<tr>
<td>The presenter provided an environment that was conducive to my learning where I felt safe to ask questions</td>
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<tr>
<td>The skills activity was very valuable</td>
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<tr>
<td>The simulated learning environment was a valuable learning tool</td>
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<tr>
<td>The video provided an effective overview of the procedure</td>
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<td>The scenarios added to my learning</td>
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<tr>
<td>The training was clinically and practically relevant to my workplace</td>
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(staff only)

Other comments/suggestions for improvement:
**Resource 4:** Sample Peripheral IV Cannulation workshop attendance sheet

<table>
<thead>
<tr>
<th>Name</th>
<th>Staff/Student</th>
<th>Discipline</th>
<th>Year Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. I.V. Drip</td>
<td>Student</td>
<td>Nursing</td>
<td>(Student only)</td>
</tr>
</tbody>
</table>