

# Competences:

an education and training competence framework for administering medicines intravenously to children and young people

CLINICAL PROFESSIONAL RESOURCE



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## Publication

This is a RCN competence knowledge and skills framework to support personal development and career progression.

## Description

This framework describes the theoretical and practical competences and overall indicative content for education and training programmes for administering medicines intravenously to children and young people.

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# Introduction

**Competence can be defined as: “The state of having the knowledge, judgement, skills, energy, experience and motivation required to respond adequately to the demands of one’s professional responsibilities” (Roach, 1992).**

This education and training competence framework for administering medicines intravenously to children and young people was first published in 2005. It has been revised in 2017 to reflect a number of current political and professional issues and initiatives.

The use of intravenous medicines for children and young people is now commonplace with the intravenous route being the only method for giving some medicines. Therefore, it is an important skill for nurses caring for children and young people to develop and maintain.

This framework describes the theoretical and practical competences and overall indicative content for education and training programmes for administering medicines intravenously to children and young people.

It aims to support consistent curriculum and practice development so that practitioners can develop and maintain the ability to carry out this task, regardless of where they work. It should also be used to develop new programmes, and to review and revise existing ones. By using this framework, other professionals and employers can be confident in the standard and proficiency of practitioners.

# 1. Guidance for programme development

When either planning new courses or reviewing existing courses, we recommend that hospitals, community services and universities use this as their competence framework.

## Education pathways

This framework can be used to develop hospital-based training programmes for nurses working with children and young people. Alternatively, it can be used to review existing programmes to ensure that they meet the needs of children and young people. Training may be linked to other competences, such as those required for capillary blood sampling and venepuncture.

Indicative training content should encompass:

- the Nursing and Midwifery Council Code (NMC, 2015)
- legal, professional and local policies concerning record keeping
- local and national policies and procedures for giving intravenous medicines
- evidence base for good practice in administering medicines intravenously
- policies and good practice guidance in obtaining informed consent
- policies and good practice guidance for holding and restraining children, which emphasise using the least restrictive intervention possible
- the nurse as advocate for the child and family
- medicine calculations and formulae, weight and body surface area
- Health and Safety at Work Act 1974 and other regulations (HSE)
- control of substances hazardous to health (COSHH) regulations 2002
- National Health Services Litigation Authority (NHSLA) standards
- medication errors, prevention, management, reporting
- Right patient – right care (NPSA, 2004a)
- the role of the National Patient Safety Agency and Medicines and Healthcare Products Regulatory Agency.

## Teaching and learning strategies

The administration of medicines intravenously is a practical skill which is underpinned by theoretical knowledge. Teaching and learning strategies should focus on developing the competence and confidence of the practitioner. Assessment of prior knowledge, particularly in caring for the child undergoing intravenous therapy, can be useful in developing programmes that reflect the individual needs of the practitioner.

A variety of ways of learning can be used, including:

- workbooks
- problem-based learning
- taught provision
- scenarios
- supervised practice
- e-learning
- simulation
- blended learning.

## Assessment

Each programme needs to assess competence in practice. Practice assessments should reflect the competences and learning outcomes. There are various assessment methods that are appropriate:

- observation under supervision and demonstration
- reflective practice
- portfolio of evidence showing skills, experience and development, supported by supervisors
- formal examination (objective structured clinical assessment).

Each of these relies on the use of practice assessors. Programme developers should consider who this may be and the criteria needed to become and maintain this status.

We recommend that an assessor should be experienced in administering medicines intravenously to children and young people. Their ability to assess others should be determined by a formal assessment process.

We also advise that they receive clear guidance on their role and responsibilities. Regular updating and skills assessment can assist in ensuring ongoing competence.

We suggest that this takes place at least annually and when new equipment is introduced. Many organisations have also introduced an annual maths assessment for all IV drugs givers to reduce calculation errors.

## 2. Practical and theoretical competences

### Domain 1: professional and legal issues

#### Practical competences

- Administers medicines intravenously in accordance with legal, professional and policy requirements.
- Uses appropriate evidence to underpin best practice in administering intravenous medicines.
- Demonstrates knowledge and understanding of the process for gaining valid consent from children, young people and their parents/ carers.
- Records and reports information in a manner that is clear, concise, timely and accurate.
- Reflects on own practice and takes action to develop and improve knowledge and skills.
- Describes situations where it is inappropriate to administer a medicine intravenously, and the alternative action to take.
- Demonstrates the safe application of the principles of “restrictive physical intervention and therapeutic holding in children and young people” (RCN 2010).

#### Theoretical competences

At the end of a course of study and period of supervised practice the nurse will be able to:

- discuss the legal and professional issues associated with administering medicines intravenously
- use current evidence to support best practice in the administration of intravenous medicines
- give an account of professional and local policies relevant to giving and receiving medicines intravenously
- describe the principles that underpin the process of gaining valid consent from children, young people and their parents/ carers
- identify the legal requirements for good record keeping in the administration of intravenous medicines

- reflect on own practice, identifying accountability and competence issues.

### Domain 2: communication

#### Practical competences

- Uses appropriate strategies for gaining the child and family’s trust and for reducing anxiety, including the role of play and diversion therapy, in administering medicines intravenously.
- Demonstrates active listening skills when communicating.
- Explains and gives information to the child and family to assist their understanding and to gain informed consent.
- Acts as an advocate for the child and family.
- Liaises with the multidisciplinary team in providing safe, effective intravenous medicine therapy.

#### Theoretical competences

At the end of a course of study and period of supervised practice the nurse will be able to:

- communicate the proposed care plan to the child and family, and gain informed consent to proceed
- explain the procedure to the child and family in a manner that increases confidence and minimises anxiety
- record all communication with the multidisciplinary team, child and family in appropriate nursing documentation
- explain the importance, and demonstrate the use of play and diversion therapy in minimising pain and anxiety.

### Domain 3: medical devices and equipment

#### Practical competences

- Administers intravenous medicines safely and competently, using appropriate equipment.
- Demonstrates knowledge and understanding of the medical devices and equipment used

to administer medicines intravenously via peripheral and central venous access. This includes volumetric infusion pumps and pumps with in built drug libraries.

- Demonstrates dexterity and numeracy skills when handling the medical devices and equipment used for giving medicines intravenously.
- Initiates and monitors a care plan for a child receiving medicines intravenously using a medical device.
- Takes appropriate action in relation to faulty medical devices and equipment.

### Theoretical competences

At the end of a course of study and period of supervised practice the nurse will be able to:

- outline the care required by children and young people receiving medicines intravenously by different methods and routes of administration
- provide a rationale for the selection of a specific piece of equipment or medical device
- develop a care plan for the child receiving medicines intravenously using a medical device
- monitor medication given via infusion pumps to ensure that the correct infusion rate has been set
- identify problems with equipment or medical devices, the procedures associated with faulty equipment, and take appropriate action
- demonstrate manual dexterity and numeracy skills to enable safe and effective use of volumetric infusion pumps.

## Domain 4: medicines management

### Practical competences

- Demonstrates an understanding of the uses and side effects associated with the medicines for administration.
- Demonstrates an understanding of the pharmacological actions that occur when medicines are given intravenously.
- Outlines the action of the medicine and

its pharmacokinetics in babies and young children.

- Calculates the doses and/or volumes of medicine for administration.
- Identifies a suitable method/means of administration for giving medicines intravenously.
- Initiates appropriate actions for checking the prescription chart, patient identity, and allergy status.
- Uses the correct series of actions and demonstrates dexterity when reconstituting and giving medicines intravenously, including the identification of the correct solution for flushing.
- Adheres to British National Formulary (child) and the manufacturers administration guidance
- Ensures that an accurate weight and height measurement has been recorded, to enable drug dosage calculation
- Administers intravenous medicines promptly, at the prescribed rate and dose.
- Demonstrates knowledge of the safe ordering, storage and disposal of intravenous medicines and equipment.
- Makes and records appropriate observations of the child and venous access device site, before, during and after the procedures.
- Demonstrates the knowledge and skills necessary for safe practice before, during and after the administration of intravenous medicines.
- Outlines immediate action to be taken in the case of unwanted or unexpected adverse reactions.
- Identifies likely causes of discomfort and/or pain and take appropriate action.
- Describes how to assess and maintain the patency of a venous access device.
- Documents that intravenous medication has been administered

### Theoretical competences

At the end of a course of study and period of supervised practice the nurse will be able to:

- discuss the implications of administering

medicines to children and young people in relation to employer's practice policy and NMC guidance

- identify the commonly prescribed intravenous medicines within his/her area of practice and describe their uses and side-effects
- describe the factors that determine whether an intravenous medicine is given by infusion or as a bolus
- calculate medicine doses and infusion rates safely, using recognised formulae
- discuss medicine compatibility, displacement values and factors that affect the stability of medicines prepared for intravenous administration
- describe the rationale, and demonstrate the technique for flushing a venous access device, or intravenous administration set/extension tubing, before and after the administration of medicine
- describe how to assess and maintain the patency of a venous access device
- describe the different types of access ie peripheral venous access versus central access
- identify the roles and responsibilities of other team members in prescribing, dispensing, checking and administering intravenous medicines
- identify the immediate action to be taken in the case of unwanted or unexpected adverse reactions including the anaphylaxis policy.

## Domain 5: risks and hazards

### Practical competences

- Describes the specific risks to children of giving medicines intravenously.
- Applies appropriate measures to prevent and control infection.
- Utilises checking procedures that enhance patient safety and minimise the risk of error.
- Describes the risks to patients from inaccurate or incomplete identity checks.
- Recognises the clinical signs of hazards associated with giving intravenous medicines

and takes appropriate action to prevent/ minimise them.

- Demonstrates the correct procedure for hand washing, use of gloves, apron and aseptic non touch technique (Macqueen, Bruce and Gibson, 2012)
- Demonstrates the correct procedure for checking a patient's identity.
- Initiates appropriate action in response to an error in giving medicines intravenously.
- Recognises complications associated with indwelling venous access devices, their cause and actions required to prevent, minimise and treat them.
- Disposes of equipment safely in accordance with hospital policies.
- Recognises specific risks and hazards associated with a child's age, developmental level or individual circumstances.

### Theoretical competences

At the end of a course of study and period of supervised practice the nurse will be able to:

- follow recognised procedures to prevent and detect infection when preparing and giving intravenous medicines
- recall the signs and symptoms of venous access device related infection, infiltration and extravasation
- identify actual and potential problems associated with giving medicines intravenously and discuss their prevention and management
- identify the correct process and procedures for the disposal of equipment and hazardous substances
- explain the actions to take in the event of an error or adverse incident associated with administering medicines intravenously, regardless of whether this was due to numerical, manual or technological error.

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## 4. Online resources

- Action for Sick Children  
[www.actionforsickchildren.org](http://www.actionforsickchildren.org)
- ANTT guidelines  
[www.antt.org.uk](http://www.antt.org.uk)
- British National Formulary for Children  
[www.bnf.org/bnf/index.htm](http://www.bnf.org/bnf/index.htm)
- BMJ Learning  
E-learning module 'Safe use of injectable medicines'  
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- Department of Health (England)  
[www.gov.uk/dh](http://www.gov.uk/dh)
- Department of Health, Social Services and Public Safety, Northern Ireland  
[www.health-ni.gov.uk](http://www.health-ni.gov.uk)
- Evidence-based Practice in Infection Control [EPIC 2]  
[www.ncbi.nlm.nih.gov/pubmed/11161888](http://www.ncbi.nlm.nih.gov/pubmed/11161888)
- Hand hygiene (Scotland)  
[www.washyourhandsofthem.com](http://www.washyourhandsofthem.com)
- Health and Safety Executive  
[www.hse.gov.uk](http://www.hse.gov.uk)
- Health Care Standards Unit  
[www.hcsu.org.uk](http://www.hcsu.org.uk)
- Infection Prevention Society  
[www.ips.uk.net](http://www.ips.uk.net)
- Joanna Briggs Institute  
[www.joannabriggs.org](http://www.joannabriggs.org)
- National Association of Hospital Play Staff  
[www.nahps.org.uk](http://www.nahps.org.uk)
- National Patient Safety Agency  
[www.npsa.nhs.uk](http://www.npsa.nhs.uk)
- NHS Education for Scotland  
[www.nes.scot.nhs.uk](http://www.nes.scot.nhs.uk)
- NHS Evidence  
[www.evidence.nhs.uk](http://www.evidence.nhs.uk)
- NHS Litigation Authority  
[www.nhsla.com](http://www.nhsla.com)
- Northern Ireland Patient Safety Forum  
[www.publichealth.hscni.net/directorate-nursing-and-allied-health-professions/hsc-safety-forum](http://www.publichealth.hscni.net/directorate-nursing-and-allied-health-professions/hsc-safety-forum)
- Northern Ireland Practice and Education Council for Nurses and Midwives  
[www.nipec.n-i.nhs.uk](http://www.nipec.n-i.nhs.uk)
- NHS Scotland  
[www.scot.nhs.uk](http://www.scot.nhs.uk)
- NHS Wales  
[www.wales.nhs.uk](http://www.wales.nhs.uk)
- Nursing and Midwifery Council  
[www.nmc-uk.org](http://www.nmc-uk.org)
- Royal College of Nursing  
[www.rcn.org.uk](http://www.rcn.org.uk)
- Royal College of Paediatrics and Child Health  
[www.rcpch.ac.uk](http://www.rcpch.ac.uk)
- Skills for Health  
[www.skillsforhealth.org.uk](http://www.skillsforhealth.org.uk)
- UK Health and Safety legislation  
[www.coshh-essentials.org.uk](http://www.coshh-essentials.org.uk)
- Vascular access and infusion related policies and guidelines (Health Service Executive Republic of Ireland)  
[www.ivpolicy.com](http://www.ivpolicy.com)
- Venepuncture and Cannulation: ebook by Sarah Phillips, Mary Collins and Lisa Dougherty  
<https://itunes.apple.com/gb/book/venepuncture-cannulation/id426639682?mt=11>

## Notes

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