Guidance for nurses and midwives in practice development units who are involved in the education of staff in the preparation and administration of injections in near-patient areas.

August 2007
Review Date August 2008
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Introduction

Improving the patient experience is at the heart of the National Health Service. Standards and quality of care must remain consistently high, regardless of who performs a clinical intervention and where it is performed. The preparation of injections in the near-patient area, defined as the area where the patient is examined, treated and cared for in clinical settings and patient homes, should be carried out by suitably educated healthcare staff in a suitable environment, using safe procedures. Healthcare professionals need to be educated in the preparation of injections in near-patient areas as this is where the majority of injections are prepared prior to administration. This education should take the form of a dedicated competency based training programme. The training should be available for all members of the healthcare team who are required to prepare and administer injections in near-patient areas, for example nurses, doctors and pharmacists. Following attendance at an initial educational course, the competence of practitioners should be reassessed on a regular basis (e.g. every 3 years).

Rationale for development of the guidance
This guidance document has been developed to support the implementation of the publication from The Scottish Executive Clinical Resource and Audit Group (CRAG) Good Practice Statement for the Preparation of Injections in Near-Patient Areas, Including Clinical and Home Environments. It expands on each of the topic areas in Appendix 6 of the publication, ‘Example training programme for the preparation of injections.’

The scope of this guidance
This guidance was developed using current course programmes, course workbooks and other documentation submitted by practitioners who are currently involved in the education of practitioners within secondary care in NHS Scotland.

Who is the guidance for?
This guidance document is primarily directed at those practice educators who currently provide, educational courses on the preparation and administration of injections in near-patient areas. However, this guidance document may be relevant to other professionals (e.g. doctors and pharmacists). It is intended to provide a framework to facilitate the development and review of current training courses for the preparation and administration of injections within NHS Scotland.

Additional education will be required for high risk injections, (e.g. chemotherapy, intrathecal and epidural injections) and for high risk patient groups, (e.g. paediatric patients).
Structure and use of the guidance document

This guidance document comprises of three sections:

**Section A** shares the educational framework, in 14 distinct sections. Each section details the various topics that need to be included in a local educational programme to ensure compliance with the CRAG publication ‘Good Practice Statement for the Preparation of Injections In Near-Patient Areas, Including Clinical and Home Environments.’ Preceding, each topic are key references with web links which enable educators and practitioners to access the a wide variety of underpinning knowledge that support of the various competencies.

**Section B** shares information on current practice throughout Scotland. This information was submitted during the scoping exercise.

**Section C** details the minimum underpinning knowledge that should be provided within a local educational programme.

The purpose of this guidance is to provide a foundation for the further development of good practice and to facilitate consistency in the approach to the teaching about the preparation and administration of injections in near-patient areas. It is designed to complement, support and strengthen a range of quality assurance measures already in place within NHS Scotland. By following this guidance practice educators will facilitate the ‘transfer of skills’ for the preparation of injections in near-patient areas between organisations and Health Boards throughout Scotland.

The guidance document is one of a number of publications to support the education and training of the healthcare team in Scotland. A number of staff from clinical practice and education were involved in development of this guidance and their contribution is acknowledged.

The development of this guidance has been facilitated by **NHS Education for Scotland (NES)** in liaison with NHS Quality Improvement Scotland and key partners within the service.

**References**
Please see Appendix 1 for members of the reference group for development of this document.
Aim of the guidance

As stated by SEHD within Good Practice Statement for the Preparation of Injections in Near - Patient Areas, including Clinical and Home Environments, any training provided should consist of as a minimum, information relating to:

- the reconstitution of medicines
- the compatibility/incompatibility of medicines with infusion fluids
- the limits on the concentration of the final solution prior to administration
- the stability of the final product
- rates of administration of medicines
- the compatibility of medicines with other medicines during the administration process

At all stages of the preparation and administration process injections must be clearly identifiable. This should be achieved through clear, accurate labelling of the product or by a locally agreed documented system.

NHS Scotland staff who have responsibility for developing and delivering education and training in the preparation of injections in near-patient areas, are encouraged to use this guidance to:

- map existing educational programmes to the recommendations as detailed in HDL (2002) 91 Good Practice Statement for the Preparation of Injections in Near - Patient Areas, Including Clinical and Home Environments
- amend current educational programmes in light of the above
- design, develop and deliver new improved educational programmes for the training of healthcare practitioners within their local area
- be informed of aspects of practice as identified from the scoping exercise undertaken as part of this project
Process for development of the guidance

This framework was developed by:

- reviewing the content of local training programmes, local educational frameworks and recognised reference sources provided as part of the scoping exercise for this project
- consulting with multi disciplinary steering and reference groups specifically convened for this project

Format of the quality educational framework

**The quality educational framework an overview**

The quality educational framework consists of a variety of quality standards which have been designed to articulate the professional standards required as detailed within The Health Department Letter (HDL (2002) 91) and the document ‘Good Practice Statement for The Preparation of Injections in Near-Patient Areas, including Clinical and Home Environments’.

**The quality educational framework (Sections A, B and C)**

**Section A:** The competency framework details the various competencies that practitioners should be able to achieve after attending a local training session. The competencies provide the educator with topics that are required to be included should they wish the local training programme to reflect the various requirements as detailed in the CRAG document. Key reference sources are detailed and web links provided where possible. Some references require a subscription to a specified nursing journal and others may be located through the e-library.

Under each topic the relevant elements for inclusion in a local training programme are detailed. In relation to each element, Suggestions for demonstration of achievement of the various elements of training are proposed. Achievement may be by achieved by e.g. attending a training session and/or by self directed reading.

**Section B:** Details examples of practice that were identified from the ‘scoping exercise’ that was undertaken as part of this project.

**Section C:** Details suggested minimum information that should be included as part of the underpinning knowledge within the delivery of the local educational programmes.
Skills for health

http://www.skillsforhealth.org.uk/page/competences/completed-competencies-projects/list

Where possible the competencies have been mapped to the various skills for health.

CHS 3  Administer Medication to individuals  http://www.skillsforhealth.org.uk/tools/get_competence.php?id=2551
CHS 23  Carry out intravenous infusion  http://www.skillsforhealth.org.uk/tools/get_competence.php?id=2574
Section A
Topic 1
General Underpinning Knowledge

Access the e-library website

Topic 1: Preparation of the Injection - responsibilities of staff

The Scottish Executive Health Department (2002)
Good Practice Statement for The Preparation of Injections in Near-Patient Areas, including Clinical and Home Environments, Edinburgh: SEHD
http://www.scotland.gov.uk/Publications/2002/12/16049/15908

Promoting safer use of injectable medicines: Patient safety alert 20, London

The Royal Pharmaceutical Society (2005)
http://www.rpsgb.org/pdfs/safsechandmeds.pdf

Nursing and Midwifery Council
The NMC Code of Professional Conduct: Standards for Conduct, Performance and Ethics. Standards 07 04 Published November 2004
Guidelines for Records and Record Keeping Guidance 01 05 Published 2005
A-Z Advice Sheet The Administration of Medicines 2004 Last Updated July 2006

The Office of Public Sector Information

The Royal College of Nursing
Standards for Infusion Therapy. 2005
www.nmc-uk.org.uk
Nursing Standard 2005

Nursing Standard

The British Journal of Nursing
Knowledge of Principles for the correct administration of medicines

Knowledge of Principles for the correct administration of medicines

The Department of Health

Underpinning Knowledge for Specific Competencies

Competency 1.4
Medicines, Ethics and Practice: A Guide for Pharmacists

Medicines for Human Use http://www.rpsgb.org.uk/pdfs/MEP30s1-2a.pdf

Competency 1.6
Local policies/guidance for the:
  - Reporting mechanisms for the preparation of injections

Competency 1.7/1.8
Local policies/guidance that encompass the:
  - Preparation and administration of medicines
  - Switching from intravenous to oral preparations
  - Prescribing of antibiotics
  - Administration of parenteral medicines (e.g. status epilepticus)
Local Policies and Procedures for obtaining consent from a patient

**Competency 1.10**

**Competency 1.11**


**The Electronic Medicines Compendium** www.emcmedicines.org.uk

Local policies or training sessions for the:

- Reporting of Adverse Events and Medication Incidents
- Preparation and Administration of Medicines (in particular, injections)
- Monitoring of Infusions and Infusion Devices


**Competency 1.12**

**Competency 1.13**

The Yellow Card Scheme

http://www.mhra.gov.uk/home/idcplg?IdcService=SS_GET_PAGE&nodeId=287

Significant Event Analysis www.nes.scot.nhs.uk/sea

Local/professional policies for:

- The reporting of adverse events/medication incidents
- CPD

Supporting Nurses and Midwives Through Life Long Learning Published 04/02


www.paymodernisation.scot.nhs.uk/afc/ksf/docs/ksf%20handbook.pdf
## Section A

### Competency Framework

#### Topic 1: Preparation of the Injection- Responsibilities of Staff (e.g. nurses, doctors and pharmacists)

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Learning Method</th>
<th>How Competence is Assessed</th>
</tr>
</thead>
</table>
| 1.1  Be able to discuss the legal, ethical and professional issues that need to be considered when a practitioner prepares or administers an injection | Directed reading  + Local course for the preparation of injections               | Completion of individual professional CPD record  
Assessment by experienced practitioner during period of supervised practice |
| 1.2  Be able to describe the role and responsibility of a practitioner when preparing /administering an injection | Directed reading  + Local course for the preparation of injections               | Completion of individual professional CPD record  
Assessment by experienced practitioner during period of supervised practice |
| 1.3  Be able to describe the procedures that the practitioner must follow to ensure that administration of a medicine by injection is in the best interest of the patient and is the most appropriate route for the drug and the dose prescribed | Directed reading  + Local course for the preparation of injections               | Assessment by experienced practitioner during period of supervised practice |
| 1.4  Be able to describe the reasons for the development of standard procedures for the preparation of injections and the reasons for using standard, documentation when prescribing, preparing or administering injections | Directed reading  + Local course for the preparation of injections               | Written report or testimonial  
+ Appropriate completion of documentation during period of supervised practice |
<p>| 1.5 | Be able to describe organisational personnel reporting structures and the documentation required when a practitioner prepares/administers an injection | Directed reading + Local course for the preparation of injections | Appropriate completion of related local documentation |
| 1.6 | Be able to describe the reasons for ‘regular’ (e.g. annual), audit of the practice of preparing injections within the vicinity of the patient and be able to describe the documentation required in order to undertake such an audit | Local course for the preparation of injections | Assessment by experienced practitioner during period of supervised practice |
| 1.7 | Be able to describe the rational for the prescribing of at least 3 different types of injections by a practitioner and be able to justify that the prescription is in the best interest of the patient | Directed reading + Local course for the preparation of injections | Testimonial following assessment during supervised practice |
| 1.8 | Be able to describe the duty of care of the practitioner when they prepare or administer an injection | Directed reading + Local course for the preparation of injections | Written report or testimonial |
| 1.9 | Be able to describe the local procedure to be followed to obtain appropriate consent from a patient | Directed reading + Local course for the preparation of injections | Testimonial following observation during period of supervised practice |
| 1.10 | Be able to describe the practitioner’s role in the monitoring of the patient prior to, during and after administration of an injection | Local course for the preparation of injections | Written report or testimonial after period of supervised practice |</p>
<table>
<thead>
<tr>
<th>1.11</th>
<th>Be able to describe the local procedure for the reporting of adverse events or medication incidents and be able to identify the documentation required for the reporting of such an event/incident</th>
<th>Directed reading + Attendance at local training sessions</th>
<th>Written report or testimonial after period of supervised practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.12</td>
<td>Be able to demonstrate continued competence</td>
<td>Directed reading + Attendance at the local course for the preparation of injections</td>
<td>Annual PDP meeting Assessment every 3 years</td>
</tr>
</tbody>
</table>
### Topic 2: Hazards involved in the Preparation and Administration of Injections

<table>
<thead>
<tr>
<th>General Underpinning Knowledge/Directed Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CARDS</strong>&lt;br&gt;Centre for Adverse Reactions to Drugs (Scotland)</td>
</tr>
</tbody>
</table>
Underpinning Knowledge for Specific Competencies

Competency 2.1
Local policies/guidance for the:
- Preparation of injections (dilutions & the reconstitution process)
- Administration of medicines
- Administration of infusions (e.g. operation of devices, rates of administration, suitable diluents)

Competency 2.4
Local policies and procedures relating to the management of injection related hazards e.g.:
- Blood spillage
- Needle stick injuries
- Infection control

Competency 2.5
Local policies and procedures relating to the management of hazards

Competency 2.6
Local policies and procedures relating to the:
- Administration of multiple medicines
- Management of the injection site
- Assurance of line patency
- Management of extravasation/infiltration/anaphylaxis/phlebitis
- Control of infection
- Therapeutic drug monitoring
- Management of respiratory depression

### Section A
**Competency Framework**

**Topic 2: Hazards Involved in the Preparation and Administration of Injections**

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Learning Method</th>
<th>How Competence is Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Be able to assess, plan, implement, evaluate and prioritise the most suitable route of administration of a medicine depending on individual patient requirements/clinical condition</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Completion of individual professional CPD record + Written Report or Testimonial during period of supervised practice</td>
</tr>
<tr>
<td>2.2 Be able to describe the different routes of administration (inc. a variety of different formulations) Be able to describe at least two advantages and two disadvantages of administering medicines by each of the different routes</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Completion of individual professional CPD record + Written Report or Testimonial during period of supervised practice</td>
</tr>
<tr>
<td>2.3 Be able to describe the referral mechanism for ‘high risk’ medicines that are not suitable to be prepared within the near-patient area</td>
<td>Local course for the preparation of injections + Supervised practice</td>
<td>Completion of risk assessment during period of supervised practice</td>
</tr>
<tr>
<td>2.4 Be able to identify and discuss the management of, a variety of hazards that may affect the practitioner/others during the preparation of an injection.</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice</td>
</tr>
<tr>
<td>2.5</td>
<td>Be able to identify a variety of potential hazards that may affect the patient receiving the medication</td>
<td>Directed reading  +  Local course for the preparation of injections</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2.6</td>
<td>Be able to describe potential hazards that may occur during the administration of an injection. Be able to discuss the management of such hazards.</td>
<td>Directed reading</td>
</tr>
<tr>
<td>2.7</td>
<td>Be able to identify the correct handling and storage of medicines and be able to describe at least 3 hazards and their management, that may occur when medicines are stored out with the clinical environment</td>
<td>Local course for the preparation of injections</td>
</tr>
<tr>
<td>2.8</td>
<td>Be able to discuss the local and national procedure for the reporting of a suspected adverse drug reaction</td>
<td>Local course for the preparation of injections</td>
</tr>
</tbody>
</table>
### Section A
**General Underpinning Knowledge**

#### Topic 3

<table>
<thead>
<tr>
<th>Topic 3: Calculations and Checking Procedures During the Preparation of Injections</th>
<th>General Underpinning Knowledge/Directed Reading</th>
</tr>
</thead>
</table>
| The British National Formulary  
| Medication Dosage Skills Online | [http://authenticworld.co.uk/products/mdcs/mdcs.php](http://authenticworld.co.uk/products/mdcs/mdcs.php) |
| Nursing Standard  
Quick Reference Guide 1 (Numeracy Skills)  
Quick Reference Guide 2 (Calculating Drug Dosage) |  |

#### Underpinning Knowledge for Specific Competencies

<table>
<thead>
<tr>
<th>Competency 3.1</th>
<th>Competency 3.2</th>
</tr>
</thead>
</table>
| Local policies/procedures for the assessment of calculations  
# Section A
## Competency Framework
### Topic 3: Calculations and Checking Procedures During Preparation of Injections

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Learning Method</th>
<th>How Competence Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Be able to calculate doses correctly</td>
<td>Directed reading + Completion of calculations through examples and assessment + 1:1 support/group support (if required)</td>
<td>Individual assessment by completion of calculations prior to supervised practice (e.g., assessment to agreed local standard) + Assessment during period of supervised practice + Completion of individual professional CPD record</td>
</tr>
<tr>
<td>3.2 Be able to describe the principles of safe administration of medicines via an infusion pump and be able to demonstrate the safe administration of a drug via an infusion pump</td>
<td>Directed reading + Local course for the preparation of injections + Period of supervised practice</td>
<td>Testimonial following assessment during period of supervised practice</td>
</tr>
<tr>
<td>3.3 Demonstrate a systematic approach to the preparation of injections and be able to describe the various checks that are required to be undertaken to ensure that the product (injection) is prepared according to standard procedures</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice</td>
</tr>
</tbody>
</table>
Section A  
General Underpinning Knowledge  
Topic 4

<table>
<thead>
<tr>
<th>Topic 4: Drug Incompatibilities</th>
<th>General Underpinning Knowledge/Directed Reading</th>
</tr>
</thead>
</table>
| **The British National Formulary**  
Appendix 1: Interactions | [http://www.bnf.org/bnf/bnf/current/41001.htm](http://www.bnf.org/bnf/bnf/current/41001.htm) |

**Underpinning Knowledge for Specific Competencies**

<table>
<thead>
<tr>
<th>Competency 4.1</th>
<th>Injectable Drug Administration Guide Published by UCL Hospitals</th>
</tr>
</thead>
</table>
| Competency 4.2 | Trissel L., Handbook on Injectable Drugs: The American Society of Health-System Pharmacists (ASHP).  
Local and national monographs for medicines |
|                | Local procedures for the safe and secure handling of medicines |
### Section A
Competency Framework
**Topic 4: Drug Incompatibilities**

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Learning Method</th>
<th>How competence is assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4.1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Be able to:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) recognise and discuss potential drug interactions and incompatibilities</td>
<td>Directed reading + Local course for the preparation of injections + Consider practical demonstration/video</td>
<td>Testimonial following assessment during period of supervised practice + Written report</td>
</tr>
<tr>
<td>ii) identify reference sources that detail:</td>
<td></td>
<td></td>
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<tr>
<td>drug-drug incompatibilities, drug fluid incompatibilities and fluids to which</td>
<td></td>
<td></td>
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<tr>
<td>drugs should not be added when they are being administered</td>
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<tr>
<td><strong>4.2</strong></td>
<td></td>
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</tr>
<tr>
<td>Be able to discuss the various factors that may dictate the volume of the diluent</td>
<td>Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice</td>
</tr>
<tr>
<td>used when preparing an injection</td>
<td></td>
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</tr>
</tbody>
</table>
### Topic 5: The Stability of Prepared Injections

<table>
<thead>
<tr>
<th>Learning Outcome</th>
<th>Learning Method</th>
<th>How competence is assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice + Completion of individual professional CPD record</td>
</tr>
</tbody>
</table>

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### General Underpinning Knowledge/Directed Reading

**The British Medical Journal**


**The British National Formulary**

Appendix 6: IV Additives

[http://www.bnf.org/BNF/bnf/current/37408.htm](http://www.bnf.org/BNF/bnf/current/37408.htm)
Section A
General Underpinning Knowledge
Topic 6

Topic 6: Displacement Values

General Underpinning Knowledge/Directed Reading

The British National Formulary
Appendix 6: IV Additives

http://www.bnf.org/bnf/bnf/current/37408.htm

Underpinning Knowledge for Specific Competencies

Competency 6.1


Section A
Competency Framework
Topic 6: Displacement Values

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Learning Methods</th>
<th>How competence is assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 Be able to discuss the meaning of the term ‘displacement value’ and demonstrate safe, effective and consistent numerical ability when calculating displacement values (Cross Ref Topic 3-Calculations)</td>
<td>Theoretical education programme</td>
<td>Testimonial following assessment during period of supervised practice + Completion of individual professional CPD record</td>
</tr>
</tbody>
</table>
### Section A
**General Underpinning Knowledge**

#### Topic 7: Aseptic Technique for the Preparation of Injections

<table>
<thead>
<tr>
<th>General Underpinning Knowledge/Directed Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The British Medical Journal</strong></td>
</tr>
<tr>
<td><strong>The British National Formulary</strong></td>
</tr>
<tr>
<td><strong>Nursing Standard</strong></td>
</tr>
</tbody>
</table>

### Underpinning Knowledge for Specific Competencies

#### Competency 7.1

Local policies and procedures relating to aseptic technique


### Section A
**Competency Framework**
**Topic 7: Aseptic Technique for the Preparation of Injections**

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Learning Method</th>
<th>How Competence is Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1 Be able to discuss the procedure to prepare injections aseptically and be able to demonstrate the effective adherence to aseptic principles when preparing injections</td>
<td>Local course for the preparation of injections + Period of supervised practice</td>
<td>Testimonial following assessment during period of supervised practice + Completion of individual professional CPD record</td>
</tr>
</tbody>
</table>
## Section A
**General Underpinning Knowledge**

### Topic 8

<table>
<thead>
<tr>
<th>Topic 8 : Standard Preparation Methods for the Preparation of Injections</th>
<th>General Underpinning Knowledge/Directed Reading</th>
</tr>
</thead>
</table>
| Promoting safer use of injectable medicines:  
A template standard operating procedure for: prescribing, preparing and administering injectable medicines in clinical areas. |  |

### Underpinning Knowledge for Specific Competencies

| Competency 8.2 | Local and national drug monographs  
Local formularies and treatment protocols |
| Competency 8.3 | **The British National Formulary**  
Appendix 6: IV Additives  
| Competency 8.4 | Local policies/procedures for the disposal of:  
- Waste  
- Needles and syringes  
- Ampoules and vials |
## Section A
### Competency Framework
### Topic 8: Standard Preparation Methods for the Preparation of Injections

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Learning Method</th>
<th>How Competence is Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.1</strong> Be able to demonstrate the agreed standard procedure for the preparation of an injection</td>
<td>Directed reading + Local course for the preparation of injections + Period of supervised practice</td>
<td>Simulation during theoretical educational session + Testimonial following assessment during period of supervised practice + Completion of individual professional CPD record</td>
</tr>
<tr>
<td><strong>8.2</strong> Be able to define the term ‘Ready to Use’ injection and discuss the rationale for the prescribing of injections in a ‘Ready to Use’ form in preference to prescribing injections that require to be manipulated prior to administration</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice + Completion of individual professional CPD record</td>
</tr>
<tr>
<td><strong>8.3</strong> Be able to identify reference sources that provide supportive guidance on standard doses and concentrations of injectable medications (Cross Ref with topic 13)</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice + Completion of individual professional CPD record</td>
</tr>
<tr>
<td><strong>8.4</strong> Be able to discuss the local procedure for the safe disposal of clinical waste following the preparation of an injection and demonstrate the consistent adherence to local policies and procedures (Cross Ref with topic 12)</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice + Completion of individual professional CPD record</td>
</tr>
</tbody>
</table>
### Section A

#### General Underpinning Knowledge

**Topic 9**

<table>
<thead>
<tr>
<th>Topic 9 : Checking Procedures Prior to and During Administration of Injections</th>
<th>General Underpinning Knowledge/Directed Reading</th>
</tr>
</thead>
</table>
| **The National Patient Safety Agency**  
| **The National Extravasation Service** | [http://www.extravasation.org.uk/home.html](http://www.extravasation.org.uk/home.html) |
| **The Resuscitation Council (UK)** | [http://www.resus.org.uk/SiteIndx.htm](http://www.resus.org.uk/SiteIndx.htm) |

#### Underpinning Knowledge for Specific Competencies

**Competency 9.1**

Local procedures and policies for the:

- Checking of patients prior to the administration of medicines
- Assessment of patients during and after the administration of an injection

**Competency 9.2**

Local procedures and policies for the:

- Management of anaphylaxis
- Management of cardiopulmonary resuscitation
- Management of extravasation
- Reporting of adverse event/medication incidents
### Section A
Competency Framework
Topic 9: Checking Procedures Prior to and During Administration of Injections

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Learning Methods</th>
<th>How Competence is Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1 Be able to describe the procedures for the assessment of the patient prior to</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice + Completion of individual professional CPD record</td>
</tr>
<tr>
<td>and during the administration of an injection to minimise the risks to patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(Cross Ref with topic 2.1)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.2 Be able to describe the effective identification and management of an adverse</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice</td>
</tr>
<tr>
<td>event/medication incident that occurs during the administration process</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(Cross Ref with topic 2.6)</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### General Underpinning Knowledge

**Topic 10**

**Topic 10: Documentation for the Preparation and Administration of Injections**

<table>
<thead>
<tr>
<th>General Underpinning Knowledge/Directed Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Nursing and Midwifery Council</td>
</tr>
<tr>
<td>Guidelines for Records and Record Keeping</td>
</tr>
<tr>
<td>Guidance 01 05</td>
</tr>
<tr>
<td>Published 2005</td>
</tr>
</tbody>
</table>

### Underpinning Knowledge for Specific Competencies

**Competency 10.1**

Local procedures and policies for the recording of the:

- Prescribing of injections
- Administration of injections
**Topic 10: Documentation** for the preparation and administration of medicines

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Learning Methods</th>
<th>How Competence is Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1 Demonstrate</td>
<td>Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice</td>
</tr>
<tr>
<td>i) effective record keeping in relation to the administration of injectable medications and the consistent accurate completion of documentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii) Be able to discuss the documentation used by different members of the healthcare team during the preparation and administration of an injection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Learning Outcomes: Demonstrate i) effective record keeping in relation to the administration of injectable medications and the consistent accurate completion of documentation
- Learning Methods: Local course for the preparation of injections
- How Competence is Assessed: Testimonial following assessment during period of supervised practice
### Section A

**General Underpinning Knowledge**

**Topic 11**

<table>
<thead>
<tr>
<th>Topic 11 : Labelling Requirement for Injections</th>
<th>General Underpinning Knowledge/Directed Reading</th>
</tr>
</thead>
</table>

### Underpinning Knowledge for Specific Competencies

**Competency**

Local procedures and policies for the labelling of injections

### Section A

**Competency Framework**

**Topic 11: Labelling Requirements for Injections**

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Learning Methods</th>
<th>How Competence is Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1 Be able to prepare and label an injection according to local and national guidance</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice</td>
</tr>
</tbody>
</table>
### Section A
General Underpinning Knowledge

#### Topic 12
Disposal of Waste, Including Medicines, Containers and Sharps

<table>
<thead>
<tr>
<th>Hospital Pharmacist</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>General Underpinning Knowledge/Directed Reading</th>
</tr>
</thead>
</table>

### Underpinning Knowledge for Specific Competencies

#### Competency 12.1

Local procedures and policies for the:
- Disposal of needles
- Disposal of syringes
- Disposal of ampoules and vials
### Section A
Competency Framework
**Topic 12: Disposal of Waste, Including Medicines, Containers and Sharps**

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Learning Methods</th>
<th>How Competence is Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.1 Be able to describe the procedures for the safe disposal of clinical and non- clinical waste following the preparation/administration of an injection (Cross ref with topic 8.4)</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice + Completion of individual professional CPD record</td>
</tr>
</tbody>
</table>
### Section A
#### General Underpinning Knowledge

**Topic 13**

**Topic 13 : Product Monographs**

<table>
<thead>
<tr>
<th>General Underpinning Knowledge/Directed Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>The British National Formulary</td>
</tr>
<tr>
<td>Appendix 6 IV additives</td>
</tr>
<tr>
<td><a href="http://www.bnf.org/bnf/current/37408.htm">http://www.bnf.org/bnf/current/37408.htm</a></td>
</tr>
</tbody>
</table>

### Underpinning Knowledge for Specific Competencies

**Competency 13.1**

Local procedures and policies for the Safe and Secure Handling of Medicines

### Section A
#### Competency Framework

**Topic 13: Product Monographs**

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Learning Methods</th>
<th>How Competence Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.1 Be able to describe the reference sources required when preparing an injection (Cross Ref with topic 8.3)</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice + Completion of individual professional CPD record</td>
</tr>
</tbody>
</table>
## Section A
### General Underpinning Knowledge
#### Topic 14

<table>
<thead>
<tr>
<th>Topic 14 : Awareness of Control of Substances Hazardous to Health, and Other Health and Safety Considerations</th>
<th>General Underpinning Knowledge/Directed Reading</th>
</tr>
</thead>
</table>
| The Office of Public Sector Information  
The Control of Substances Hazardous to Health Regulations 1988  

### Underpinning Knowledge for Specific Competencies

**Competency 14.1**

Local procedures and policies for:

- Health and Safety
- The Administration of Medicines

**Competency 14.3**

The NPSA Risk Assessment Tool  
http://www.npsa.nhs.uk/site/media/documents/2475_Inject_Risk_assess.doc
## Section A
Competency Framework
Topic 14: Awareness of Control of Substances Hazardous to Health, and Other Health and Safety Considerations

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Learning Methods</th>
<th>How Competence Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1 i) Be able to describe a range of health and safety issues (hazards) that may arise during the preparation of an injection. ii) Be able to evaluate and prioritise other routes of administration in the event of being unable to administer the medicine to the patient by injection. (Cross Ref with topic 2)</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice + Completion of individual professional CPD record</td>
</tr>
<tr>
<td>14.2 Be able to identify any actions required to minimise risk to the practitioner and the environment when the injection is being prepared.</td>
<td>Directed reading + Local course for the preparation of injections</td>
<td>Testimonial following assessment during period of supervised practice</td>
</tr>
</tbody>
</table>
| 14.3 | Be able to discuss the procedure for completion of a risk assessment in order to determine the most appropriate location for the preparation of an injection.  
N.B. Where preparation will occur with the clinical environment (i.e. in the patient’s home), then a risk assessment needs to be undertaken prior to the patient being discharged from hospital. | Local course for the preparation of injections | Testimonial following assessment during period of supervised practice |
| 14.4 | Be able to identify the reasons for the preparation of ‘high risk medicines’ by specially trained pharmacy staff (e.g. pharmacy staff in an aseptic dispensing facility) and be able to identify at least 2 injections that would be unable to be prepared within the near-patient area (i.e. high risk injections). | Directed reading + Local course for the preparation of injections | Testimonial following assessment during period of supervised practice + Completion of individual professional CPD record |
| 14.5 | Be able to describe the rationale for the **immediate** administration of injections that have been prepared in the near-patient area. | Directed reading + Local course for the preparation of injections | Assessment during period of supervised practice |
## Section B

Examples of practice occurring throughout Scotland as part of the ‘scoping exercise’ undertaken for development of this guidance document

<table>
<thead>
<tr>
<th>Topic</th>
<th>Examples of Practice Identified</th>
</tr>
</thead>
</table>
| **Topic 1 Responsibilities of staff** | The provision of theoretical educational sessions/local courses for the preparation of injections that inform of the:  
  - Legal & professional requirements and regulations  
  - Liability issues  
  - Requirement for practitioners to regularly undertake CPD  
  
  Organisations that provide:  
  - An agreed length of accreditation following education intervention/attendance at a local course e.g. accreditation for 2 years with processes in place for re accreditation after this period and where there is also a process for the re-accreditation of practitioners after a break in practice. (break ≥12 months)  
  - Guidance relating to minimum grade of staff who should achieve competence in the preparation of injections in near-patient areas  
  - Refresher courses  
  - A standard framework for the period of agreed supervised practice  
  - A competency framework for completion prior to, during and after the educational session  
  - A supervised practice standards (e.g. the practitioner needs to prepare each form of injection an agreed number of times (e.g. five times), prior to being signed off as competent in the workplace (e.g. minimum of 10 injections within a 4 week period)  
  - A standard framework available for recognition of practitioners accredited as competent to prepare injections in near-patient areas  
  - Central recording of all practitioners registered to practice, with the individuals date of re-accreditation detailed |
<table>
<thead>
<tr>
<th>Topic</th>
<th>Examples of Practice Identified</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Topic 3 Calculations and checking procedures prior to preparation</strong></td>
<td>Organisations where:</td>
</tr>
<tr>
<td></td>
<td>o Practitioners ‘practise’ calculations prior to attending the educational session</td>
</tr>
<tr>
<td></td>
<td>o The calculations required to be completed for accreditation are available on CD ROM/on line for and may be completed prior to the session</td>
</tr>
<tr>
<td></td>
<td>o There are procedures in place to ensure that practitioners receive feedback on performance in completion of calculations prior to attendance at an educational session</td>
</tr>
<tr>
<td></td>
<td>o There is an agreed pass mark of 100% and where there are procedures to support practitioners who do not achieve the pass mark</td>
</tr>
<tr>
<td></td>
<td>o Further calculations are undertaken as part of a ‘refresher’ training/process after initial accreditation</td>
</tr>
<tr>
<td><strong>Topic 4 Drug Incompatibilities</strong></td>
<td>Organisations where the educational sessions:</td>
</tr>
<tr>
<td></td>
<td>o Inform of the pharmacology of an agreed list of ‘core’ medicines</td>
</tr>
<tr>
<td></td>
<td>o Inform of the pharmacokinetics of drugs with a narrow therapeutic range</td>
</tr>
<tr>
<td></td>
<td>o Inform of antibiotics and sensitivities to certain medicines</td>
</tr>
<tr>
<td></td>
<td>o Specialists are involved in delivery of relevant parts of the session (i.e. pharmacy staff, infection control specialists etc.)</td>
</tr>
<tr>
<td><strong>Topic 7 Aseptic Technique</strong></td>
<td>Organisations where:</td>
</tr>
<tr>
<td></td>
<td>o Practitioners are given the opportunity to undertake simulated preparation of an injection prior to a period of agreed supervised practice</td>
</tr>
</tbody>
</table>
### Topic 14
#### Awareness of Control of Substances Hazardous to Health and other Health and Safety Considerations

Organisations where the educational session informs of:

- The differences in the nature of medicines and the reasons why hazardous/high risk complex medicines must be made up by appropriately trained pharmacy personnel (e.g. parenteral nutrition, chemotherapy)

- The principles of COSHH and details some of the hazards involved in the preparation of medicines and how to minimise any risks that may occur during the preparation and administration of the medicine. Such hazards may be to the practitioner or to the patient (if standard procedures are not followed)

- The role of the practitioner, the procedure for the completion of a risk assessment in order to determine the level of risk associated with the medicine

Organisations where there is standard documentation for undertaking a risk assessment, that is widely available to practitioners and which guides the practitioner to the most appropriate location for preparation of the medicine (There are procedures for referral to pharmacy for the preparation of high risk / complex medicines (e.g. chemotherapy, parenteral nutrition (PN)).
Section C

Examples of the minimum information that should be included in an educational programme

Competency 1.7

Information that details at least three routes of administration:

- sc
- im
- iv

Competency 1.10

Information that will enable demonstration of knowledge of:

- the desired effects of the medicine/ potential side effects of the medicine
- the reporting of adverse events and medication incidents
- the administration of infusions

Competency 2.1

Information pertaining to patients who are:

- elderly
- malnourished
- immunocompromised
- suffering from skin loss (e.g. burns)
- receiving other medication (e.g. antibiotics)
- receiving post operative pain control/palliative care

Information pertaining to patients who have:

- systemic diseases (e.g. diabetes, cardiovascular, renal disease, hepatic disease etc)
- major organ failure/widespread infection (e.g. sepsis).

N.B. This list is not exhaustive.

Competency 2.2

Information that provides knowledge of different routes of administration:

- iv bolus
- iv continuous infusion
- iv intermittent infusion
- im injection
- sc injection
- sc infusion

N.B. This list is not exhaustive
Competency 2.4

Information that details the following hazards:
- aerosol generation
- blood spillage
- glass cuts
- blood contamination
- self contamination with medicine
- drug & fluid spills
- needle stick injuries
- infection control

Competency 2.5

Information that highlights the implications of incorrect:
- drug selection
- hand washing technique
- method of preparation
- dosage calculation
- diluent selection

Competency 2.5

Information that highlights the implications of:
- poor aseptic technique
- incompatibility of constituents (drug/drug, drug/fluid)
- instability of the final product
- contamination (microbiological and particulate)
- an unsuitable environment for preparation of the injection

Competency 2.6

Information that informs of hazards that may affect the medicine that is being administered:
- the administration of multiple other medication
- blockage of the administration line
- long term placement of devices/lines (e.g. >72 hours)
- the achievement of inappropriate therapeutic drug levels
- spillage due to leaky equipment

Competency 2.6

Information that informs of hazards that may affect the patient during administration of the medicine e.g. the signs and symptoms of:
- infection, anaphylaxis, extravasation, respiratory depression, phlebitis, infiltration, haematoma formation, infusing certain medicines over too short a timescale

Competency 2.7

Information that informs of some potential hazards that may be encountered within a patient's home or a GP's surgery
Competency 3.1

Information that describes how to calculate:

○ the volume to be administered ○ unit conversions (mg, micrograms etc.)
○ percentages (%) volume by volume (v/v), weight by volume (w/v)
○ dilutions ○ ratios ○ displacement values ○ calculations
  (infusion concentrations, rates and infusion times)

Competency 3.2

Information that describes:

○ a range of infusion pumps available locally

Competency 3.3

Information that describes a standard method of preparation and informs of the in process checks required to ensure:

○ the final product is suitable for administration
○ the appropriate expiry date of the drug, the appropriate expiry date of the finally prepared medicine ○ that the label contains the correct information

Competency 4.1

Information pertaining to reference sources that inform of:

○ drug-drug interactions ○ drug-diluent interactions
  ○ drug-drug compatibilities / incompatibilities
  ○ drug-fluid compatibilities / incompatibilities
  ○ drug-container incompatibilities (adsorption, crystallisation, permeation)

○ fluids to which drugs should not be added when they are being administered (e.g. parenteral feeding fluids, enteral feeding fluids or blood products)

Competency 4.2

Information that informs of factors that influence the volume of fluid that may be added to a medicine:

○ route of administration ○ displacement volumes ○ required final concentration of the product ○ the dose of the drug required
Competency 5.1
Information that informs of factors that influence the stability of an injection:
- incompatibilities with fluid / container / drug
- pH of product
- the environment (light /temperature)
- time scale for administration of the injection

N.B. The product should be administered immediately following preparation.

Competency 7.1
Information that informs of the importance of aseptic technique:
- sources of contamination
- infection control (Cross ref Topic 1)
- assurance of sterility(asepsis) (inc. timescales for preparation and administration)

Competency 8.1
Information that details the standard preparation for injections
- ampoules
- vials
- diluents
- syringes
- needles
- filters

Competency 8.4
Information that informs of the procedures and policies relating to the disposal of waste in particular the different:
- for disposal different types of waste- hazardous and non- hazardous
- sharps (needles)
- non sharps (syringes amps + vials iv bags)

Competency 9.1
Inform of procedures for assessment of the patient prior to and during administration of the medicine:
- patient’s identification number
- prescriber’s signature
- the approved medicine name and the formulation of the medicine
- the dose and frequency of administration
- the date and route of administration
- the patient’s age, allergy status, weight, fluid balance, renal, liver and cardiac function
- the suitability of medicine and dose based on patient’s physiological status
- the correct date and time of administration (avoidance of duplication of dosing)
- the concentration or total quantity of the medicine in the final
infusion container/syringe ○ name and volume of diluent/infusion fluid ○ the rate and duration of administration ○ the date on which treatment should be reviewed ○ the type of device to be used for administration of the medicine

**Competency 9.2**

Information that informs of the management of:
○ anaphylaxis, ○ the unconscious patient ○ extravasation
○ phlebitis e.g. Jackson scoring tool ○ faulty equipment during the administration process

**Competency 10.1**

Information that informs of documentation for:
○ the prescribing of, and the administration of, medicines
○ the monitoring of the administration of infusions
○ the monitoring of patients receiving drugs with a narrow therapeutic range

**Competency 11.1**

Information that informs of the labelling requirements:
○ the date of preparation ○ the name of the medicine ○ the intended route of administration
○ the dose of the medicine ○ the final volume of the product
○ expiry time of the final product ○ the name of diluent
○ time of addition of the medicine to the diluent
○ the final concentration (strength) of the product/infusion
○ the patient’s name ○ the initials of the practitioner preparing the product
○ the initials of the practitioner ‘checking’ the product (if appropriate)

_N.B. This list is not exhaustive_

**Competency 14.1**

Information that informs of the different routes of administration:
○ oral route, enteral tube feeding route, rectal route etc.

**Competency 14.1**

Information that informs how to ensure the health and safety of self and others:
○ minimisation of risks/hazards to the environment
○ minimisation of risks/hazards to the operator
**Competency 14.3**

Information that informs of processes, procedures and documentation associated with a risk assessment:

- high risk medicines
- low risk medicines
- chemotherapy
- parenteral Nutrition (PN)

*N.B. Where preparation will occur with the clinical environment (i.e. in the patient's home), then a risk assessment needs to be undertaken prior to the patient being discharged from hospital.*

**Competency 14.5**

Information that conveys the rationale for the immediate administration of medicines when prepared in the clinical environment:

- to avoid contamination
- to ensure stability of the product during the period of administration
Acknowledgements

The group wish to acknowledge the help of all involved in the consultation exercise and in particular the support provided from: the Chief Nurses, NHS Quality Improvement Scotland, the pharmacy aseptic specialist interest group (ASSIG) and the various practitioners who submitted training programmes and supporting documentation as part of the project.

Particular thanks to Linda Russell, Senior Pharmacy Technician, Queen Margaret Hospital, Fife, for development of the questionnaire and collation of the various documents up until June 2005.
Appendix I

References


| **Appendix II**  
| **Glossary of Terms** |  
| **Administration devices** | Medical devices designed to regulate or control, mechanically or electronically, the administration of injections or infusions of medicines  
| **Aseptic dispensing** | The preparation of a medicine that is appropriate for issue or administration to a patient, by a method of handling sterile material that employs techniques which minimise the risk of microbial contamination  
| **Aseptic technique** | Handling technique designed to minimise the risk of microbial contamination of a sterile medicine during preparation  
| **Bolus (push)** | Administration from a syringe of a small volume of a single dose of a sterile solution directly into a tissue, organ or vein, over a short time of, usually, between 30 seconds and 10 minutes  
| **Clinical areas** | Wards, clinical departments, operating theatres, clinics, GP surgeries. In the context of home care, the term may also be considered to include the patient’s home  
<p>| <strong>Diluent</strong> | Any sterile injection solution, such as water for injection or sodium chloride 0.9%, commonly used to dissolve (reconstitute) or dilute a medicine immediately before administration |</p>
<table>
<thead>
<tr>
<th><strong>Hazard</strong>&lt;sup&gt;5&lt;/sup&gt;</th>
<th>Any factor, such as a difficult procedure or a complex calculation, with the potential to cause harm if carried out incorrectly</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Risk</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Where the hazard associated with preparation is likely to have serious consequences for the patient or operator</td>
</tr>
<tr>
<td><strong>Infusion</strong>&lt;sup&gt;5&lt;/sup&gt;</td>
<td>Administration, from a syringe or other rigid or collapsible container e.g. plastic bag, of a volume of sterile solution of an injectable medicine directly into a tissue, organ or vein or artery, at a constant rate, under gravity or by means of an electronic or mechanical pump or other means of rate control, over a defined period usually of at least 10 minutes</td>
</tr>
<tr>
<td><strong>Injectable medicines</strong>&lt;sup&gt;5&lt;/sup&gt;</td>
<td>Sterile medicines intended for administration by bolus injection, perfusion or infusion by any of the following routes: intravenous, intramuscular, intrathecal, intra-articular, subcutaneous, intradermal, intraventricular, epidural, intravesicular, intravitreal, intrapelural and intraocular</td>
</tr>
<tr>
<td><strong>Licensed manufacturer</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Possessing a licence from the Licensing Authority (the Medicines Control Agency) to operate as a manufacturer of pharmaceutical products</td>
</tr>
<tr>
<td><strong>Low risk</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Where the hazard associated with preparation is unlikely to have serious consequences for the patient or operator</td>
</tr>
<tr>
<td><strong>Multi – professional</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Doctors, nurses, pharmacists and other healthcare professionals involved with prescribing, preparing or administering injectable medicines</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Near – patient area (s)</td>
<td>The general area in which the patient is examined, treated and cared for e.g. the ward, the clinic or surgery, the patient’s home</td>
</tr>
<tr>
<td>Parenteral</td>
<td>Administered by injection, infusion or implantation into the body</td>
</tr>
<tr>
<td>Preparation</td>
<td>The manipulation of ingredients and components to make a final product</td>
</tr>
<tr>
<td>Ready – to- administer injectable products</td>
<td>These products require no further dilution or reconstitution and are presented in the final container or device, ready for administration or connection to a needle or administration set. For example, an infusion in a bag with no additive required</td>
</tr>
<tr>
<td>Ready – to use injectable products</td>
<td>These products require no further dilution or reconstitution before transfer to an administration device. For example, a liquid with an ampoule, of the required concentration, that only needs to be drawn up into a syringe</td>
</tr>
</tbody>
</table>
Appendix III
Membership of Steering and Reference Groups

**Project Manager:** Fiona McMillan, Lead Pharmacist, Educational Development, Pharmacy, NHS Education for Scotland

**Project Leader:** Anne Watson, Assistant Director of Pharmacy, NHS Education for Scotland.

### Membership of the Steering Group

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  Programme Director
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  Deputy Chief Pharmacist
  Acute Division, NHS Lothian

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  (Until June 2006)
  Head of Practice Development
  NHS Quality Improvement Scotland, Glasgow

### Membership of the Reference Group

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  Professional Practice Development Officer
  NHS Quality Improvement Scotland, Edinburgh

- **Diane Alcock**
  Nursing Representative
  Professional Practice Development Nurses Forum (PPDNF)
  Scotland

- **Andrew Parker**
  Senior Pharmacist Representative, Aseptic Services Specialist Interest Group (ASSIG)
  Queen Margaret Hospital, NHS Fife

- **Prof Jim McKillop**
  Dean of The Faculty of Medicine, Glasgow University
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Elaine Traynor  
Practice Development Nurse  
South Glasgow Hospitals, NHS Greater Glasgow & Clyde

Ruth Forrest  
Senior Pharmacist  
Representative Quality Assurance Specialist Interest Group  
/(QASIG), Glasgow

From 1st September 2006  Marianne Fairley

Mike Sabin  
Programme Director  
Nursing, Midwifery and Allied Health Professions  
NHS Education for Scotland, Edinburgh

John Stuart  
Head of Nursing  
Regional Services, NHS Greater Glasgow and Clyde

Kate Lambie  
Nursing Representative  
Professional Practice Development Nurses Forum (PPDNF)

Jim Foulis  
Associate Director or Nursing  
Tayside Hospitals, NHSTayside

From 1st September 2006  Joyce Surfleet

Charles Sinclair  
Head of PPDNU  
Operational Division, NHS Fife
## Appendix IV
Respondents to the Consultation

<table>
<thead>
<tr>
<th>Name</th>
<th>Organisation</th>
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<tbody>
<tr>
<td>M Haggerty</td>
<td>South West Community Health and Care Partnership (SWCHCP)</td>
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<tr>
<td>M Russell</td>
<td>NHS Lanarkshire</td>
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<tr>
<td>J Surfleet</td>
<td>Professional Practice Development Nurses Forum (PPDNF)</td>
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<tr>
<td>B Jappy</td>
<td>Pharmacy, NHS Grampian</td>
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<tr>
<td>M Caldwell</td>
<td>Ayrshire &amp; Arran Drug and Therapeutics Committee</td>
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<tr>
<td>A Wilson</td>
<td>NHS Dumfries and Galloway</td>
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<tr>
<td>C Sinclair</td>
<td>NHS Fife</td>
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<td>P Jones</td>
<td>NHS Lothian APC</td>
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<tr>
<td>M Connolly</td>
<td>Practice Development (Acute) GGHB</td>
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<td>Name</td>
<td>Organization</td>
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<tr>
<td>E Noble</td>
<td>NHS Borders</td>
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<tr>
<td>D Corner</td>
<td>Acute Service Division Pharmaceutical NHS Tayside</td>
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<tr>
<td>C McLaughlin</td>
<td>NHS Greater Glasgow &amp; Clyde</td>
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<tr>
<td>A Mitchell</td>
<td>South East Scotland Neonatal Transport</td>
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<tr>
<td>P Ingram</td>
<td>NHS Lothian (Clinical Skills)</td>
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<tr>
<td>R Pirie</td>
<td>Learning Disabilities (Scotland)</td>
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<tr>
<td>M Kean</td>
<td>The Southern General Regional Services (ITU)</td>
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