Pharmacology Learning Resources Toolkit

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Introduction

Welcome to the pharmacology learning resources toolkit for practice supervisors (PS), practice assessors (PA) and learners. This toolkit provides various learning activities to support knowledge and skill development in relation to pharmacology within clinical practice learning environments.

The aim of this resource is to outline some teaching techniques that you can use as a PS/PA and provide you with, or signpost you to some learning resources that can be utilised with students to progress learning in relation to aspects of pharmacological knowledge and skills in line with Nursing and Midwifery. The activities are designed for you to consider your role, others to facilitate discussion between you, as the PS/PA and the student, while others can be undertaken by the student to develop learning when they are on a practice learning experience in your area.

This resource should enable you to support a student to:

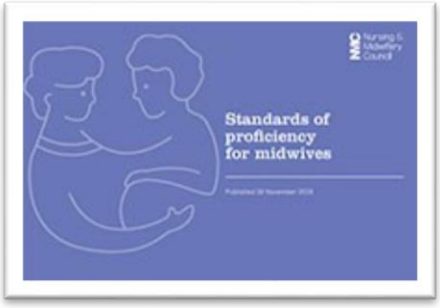
- Recognise the various procedural routes under which medicines can be prescribed, supplied, dispensed and administered; the laws, policies, regulations and guidance that underpin them.
- Carry out initial and continued assessments of people receiving care and their ability to self- administer medication.
- Exercise professional accountability in ensuring the safe administration of medicines to those receiving care.
- Explore the concepts of capacity and consent in relation to medication and pharmacology.
- Discuss the concept of covert medications applied in practice.

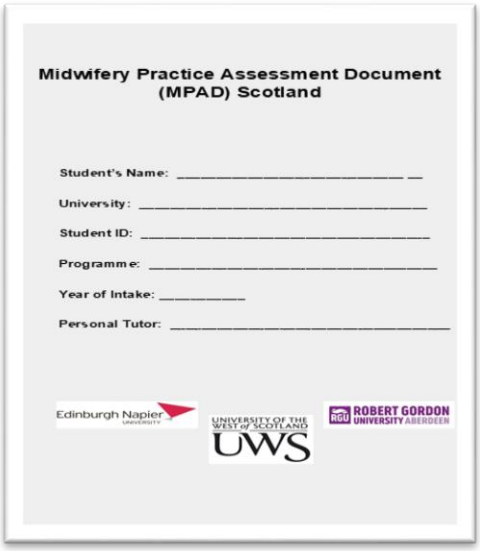
The toolkit is designed to be self-directed with a range of learning activities and clinical scenarios that you and a student can choose from and thus provide a platform for reflective discussion.

How do I use this resource?

Reflect on your learning needs and then complete the relevant activities to support your learning. Space has been provided within each activity to document learning and highlight any further area/s of study.

The learning activities have been aligned to the learning proficiencies within the pre-registration practice assessment documentation (PAD) skills and procedures (Annex B) and the pre-registration midwifery practice assessment documentation (MPAD) and is underpinned by the new standards for proficiency for registered nurses and midwives (NMC 2018a, NMC 2019a).





Please note the activities throughout the resource are linked to the PAD and MPAD for your convenience. Remember the outcomes are required to be assessed at the expected level for student's year of study i.e.,

- Dependent – year one of study
- Developing Independence – year two of study
- Independent (with direct or indirect supervision) - year three

tuThe skills and procedures applicable to each activity are also listed.

Please note more than one activity linked to each outcome may be required to be completed before the outcome or proficiency can be signed off within the PAD or MPAD.

Background information for PS/PA

This section of the resource is mainly directed towards you as PA and PS but also contains information you could share and discuss with a student.

In 2018 the Nursing and Midwifery Council (NMC) published the Future nurse: Standards of proficiency for registered nurses to modernise and allow a more innovative approach to nurse education (NMC 2018a). The Standards of proficiency for midwives (NMC 2019a) followed in 2019. While the outcomes and proficiencies detailed in the standards are those that pre-registration students must be able to demonstrate at point of registration, they also apply to all registered nurses and midwives, i.e. the standards set out the knowledge and skills all registered nurses and midwives require to possess to care for people across all ages and care settings.

These standards are supported by the NMC Realising Professionalism: Standards for education and training (NMC 2018b, 2091b). These sets of standards were written after two years of public consultation and were fully adopted in Scotland in September 2020 for nursing and in September 2021 for midwifery after a “once for Scotland” approach.

As the NMC Standards (NMC 2018a, NMC 2019a) apply to all nurses and midwives as a PS and/or PA you have a responsibility to be familiar with these standards, to help support learners and for your own revalidation. Once you have re-familiarised yourself with the pre-registration standards you may wish to think about your own skills and knowledge in relation to these. Consider: are there any gaps that you can identify? Think about how you can update your skills and knowledge, for example, TURAS, through local training, via your board’s or organisation’s learning platform.

Please follow these links to familiarise yourself with the Standards:

Future Nurse: Standards of proficiency for registered nurses

Standards of proficiency for midwives

For your convenience the outcomes and proficiencies that specifically relate to pharmacological knowledge and understanding are listed in appendix 1 (Nurses) and appendix 2 (midwives).

Reading the standards, you will have seen that pharmacology, recognition of the effects of medicines and polypharmacy knowledge are a required outcome in all undergraduate programmes. When the standards were first published there were several myths about the outcomes on registration. Here is one of them.

Myth Buster

The phrase ‘prescriber ready’ led to early misconceptions that student nurses or student midwives would complete their programme of education and join the NMC register as non- medical prescribers.

The current NMC programme of education for both nursing and midwifery certainly promotes a deeper level of knowledge and understanding relating to pharmacology than the past curriculum. This deeper level of knowledge and understanding is designed to enhance safe and effective care delivery, plus increase readiness for progression towards a post registration NMC prescriber qualification.

Pre–registration nurses and midwives will not be prescribers on qualifying.

Nurse and midwife prescribers must complete an approved NMC prescribing qualification. In line with the NMC (2018c) Part 3: Standards for prescribing programmes which can be accessed here, all NMC approved prescribing programmes must deliver outcomes which meet the Royal Pharmaceutical Society's Competency Framework . Students on the new pre-registration programmes are undertaking pharmacological theory in line with the framework. Universities in Scotland are all using the learning outcomes in the Quality Assurance framework for BioScience Education in Nursing (BINE) and if you look at section 8 (pages 30-36) in this document you can see the learning outcomes related to pharmacology that all pre-registration nurses and midwives in Scotland have within their programme curricula. There are also some illustrative examples within this framework that can be used to work through with your learner.

Therefore, with this theoretical input on completion of their programme students will have the underpinning knowledge to progress to prescribing programmes at a later date. It does not mean they will be prescribing on registration but does mean that if they so wish, graduate nurses will be able to progress to post registration NMC independent prescribing qualification programmes immediately after qualification (Patterson and Wood 2019).

Pre-registration nursing and midwifery courses have a 50/50 split between theoretical teaching and practice-based learning (NMC 2018b). Practice based learning has been evaluated by student nurses as invaluable when learning medicines management and combining the theoretical principles with practice (Moloney, Kingston and Doody 2020). Having read the documents referred to in this section now consider the activity below.

Activity
These standards apply to all nurses and midwives and, alongside the NMC code of conduct (NMC 2018d), are the basis of revalidation. As a registered nurse or midwife, you are required to be familiar with your relevant standards for revalidation in order to help you "maintain safe and effective practice" (NMC 2019b). The NMC state that the standards:

"set out what we expect students to know, understand and be able to do to apply to join our register and to practise safely and effectively. It is important for you to become familiar with the most recent standards, identify which ones relate to your scope of practice and identify your training needs. This will help you to advance your practice and also means that you will be equipped to supervise and assess students if this is part of your role"

- Do you think you have any gaps in your knowledge around pharmacology, pharmakinetics, medicine effects and polypharmacy?
- If so, how would you plan to address this and record this learning for revalidation?

Insert your thoughts and planned actions here

Define above terms and look at them in relation to vaccines used and knowledge base.
Further study vaccines in context of above terms

As a PS or PA your supervision and support will be crucial in ensuring our future registrants have met the outcomes associated with nursing and midwifery standards therefore you may find it useful to undertake the following activity asking you to consider how you currently support learners with pharmacology knowledge and skills.

Activity

Think about how you currently support learners with pharmacologic teaching and learning within your learning environment:

- How do you currently support students develop practice-based pharmacology knowledge?
- What resources do you already use?

Insert your thoughts here

Here are some of the activities that other PS/PAs use that they have shared with us when developing this resource.

Some activities PS and PA have told us they currently utilise :

- ***Embedding in care – discussing medication in direct patient care***
- ***Encouraging students to use initiative to look at medications or group of medications common in the learning environment***
- ***During patient admission / discharge process***
- ***Teaching 1:1 session or talk with other students***
- ***Polypharmacy discussion in Care homes or older adult settings***
- ***Multi-disciplinary team ward rounds***
- ***Scenario based activities***
- ***Co-morbidity issues creating discussion***
- ***Practice areas resources or e-resources***
- ***Working with area pharmacist or local community pharmacist***
- ***Access to BNF***
- ***Teach back sessions***
- ***Teaching on anatomy and physiology and the effects of medicine and drugs***

Here is an example of an activity:
You are acting as a practice supervisor whilst admitting a patient who has had a collapse. A list of drugs the patient is normally prescribed is compiled. You ask the student to look up the medications, possible reasons for them being prescribed to the patient and any contraindications especially relating to the admission (e.g. antihypertensives) and probe and discuss with the student their findings/learning.

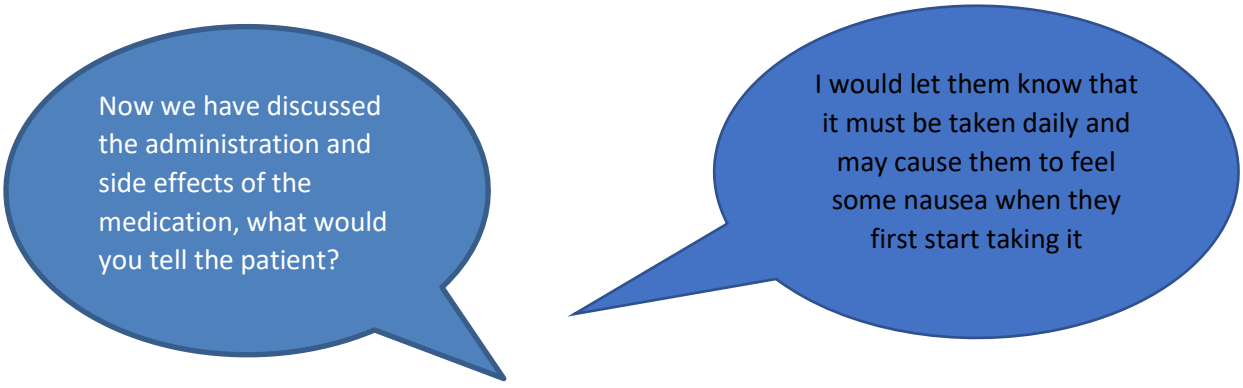
Teaching and Learning strategies to support students

This section of the resource is directed towards you as PA and PS and will explore teaching and learning strategies you can use to assist learners to learn. The strategies outlined are commonly used for teaching learners in general but have a pharmacology focus to illustrate how you could apply them when supporting learners with their pharmacology outcomes and proficiencies.

Teach back

Teach back is a technique which can be used to ensure that the information you provide is being understood by the learner.

Example with pharmacology focus



More information on Teach Back is available here.

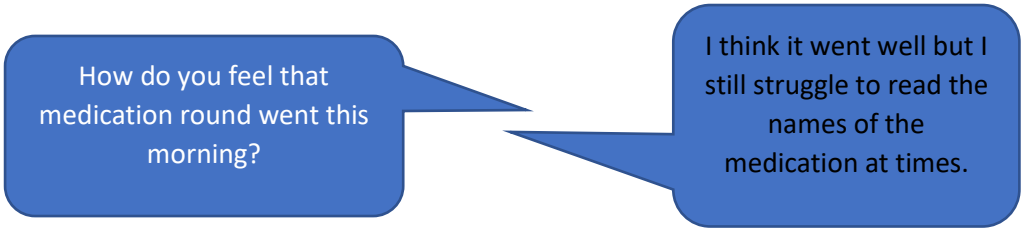
You may also want to access the TURAS health literacy learning resource available here. (Please watch the video within the resource for more information)

Feedback

Feedback is an exchange of information from one person to another that may take place for a variety of reasons:

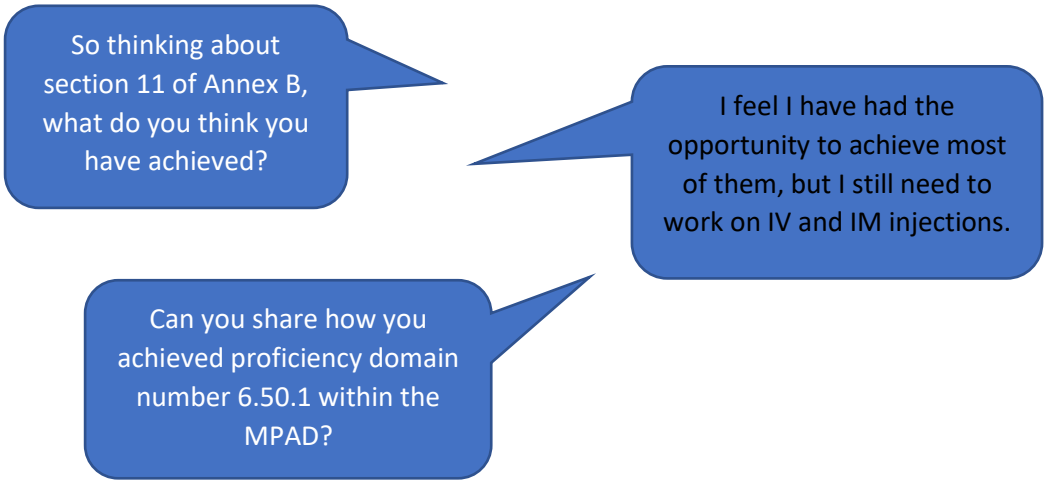
1. Providing constructive feedback is a vital component in the support for any learner to develop and enhance their knowledge, skills and identify areas to focus on.

   Example with pharmacology focus



2. Measure individual attainment against a specific goal

   Example with pharmacology focus



Pendleton et al (1984) produced a list of rules which require to be adhered to ensure effective feedback, namely:

- Briefly clarify the matter of fact
- The learner goes first and discusses what went well
- The trainer discusses what went well
- The learner describes what could have been done differently and makes suggestions for change

- The trainer identifies what could be done differently and gives options for change

One of the commonly used approaches to giving feedback is the feedback sandwich:

- First provide positive feedback – what has the learner done well, why was this done right. Remembering to be clear, specific, personal and honest
- Then provide the learner with constructive feedback – what has the learner still to achieve/ improve. Take the time to discuss how this will be achieved, enable a change in behaviour. Remember to be specific, constructive, kind and honest
- End on a positive – Be encouraging, move forward and work together

As a **learner** it is important to be aware that feedback from the PS/PA is a valuable way to learn, although it may not always be what we want to hear. Below are some tips for receiving feedback whether you are a student or a PS/PA:

- Be approachable and open to feedback and ask for it, particularly if you think there is feedback available but not being given
- Suspend judgement and reflect on what you are being told
- Actively listen to understand and ask questions to clarify and explore
- Show appreciation for the feedback. It is information that you would not otherwise have received, and it may have been difficult for the person to discuss it with you
- A useful article on giving and receiving feedback effectively, including various models for giving feedback can be found here
- If we wish for a culture where people feel able to give their best at their work, where there are good relationships and trust and where positive values and behaviours are the norm, then being able to give feedback is a vital skill for us all.

Opportunities for Learning

Once you and the student you are supporting, and supervising have agreed the learning outcomes to be achieved then you may wish to consider which learning opportunity/ies would help a student to learn and consolidate their knowledge and skills. Some examples of opportunities that can be used to develop pharmacology knowledge and skills are highlighted now. **Note**, this is not an exhaustive list but some commonly used opportunities that are used in practice learning environments.

Working with the Multidisciplinary Team

It is worth considering other health and social care professions that can offer learning and development opportunities for your learners. For example:

- Doctors
- Pharmacists
- Specialist Nurses
- Nurse prescribers
- Acute or Chronic Pain Team
- Midwives
- Patient
- Carers

According to CAIPE (2002) “Interprofessional Education occurs when two or more professions learn with, from and about each other to improve collaboration and the quality of care.” This enables the professions to enhance their understanding of each other’s role in providing holistic care to patients as well as improving communication. CAIPE suggest considering opportunities in placement such as multidisciplinary meetings, ward rounds, CPD sessions, shadowing and discharge planning amongst others.

Activity

Can you identify any members of the multidisciplinary team within, or associated with your practice area, that could support students with the outcomes and proficiencies associated with pharmacology?

List their details below:

Simulation

Simulation has long been a useful tool in pre and post registration education. This can be utilised in the practice learning environment to facilitate and supplement medication administration training. Simulation need not be high-fidelity utilising expensive equipment – simulation can be as simple as mock medications, training prescription charts and a colleague volunteering as a patient.

Activity

Ask your learner to take some time to reflect on the practice learning environment and identify opportunities for simulation. You may want to develop some scenarios relevant to your practice area to use with your students as well.

Some examples of simulation may be:

- Use of prescription charts to ensure a learner has an understanding of all of the information detailed and why this is required
- Carry out some role play and ask the learner to simulate a discussion regarding a new medication that a patient has been prescribed i.e. what is it, why has the patient been prescribed this and what side effects do they require to look out for?
- Ask the learner to plan for a home visit to a patient to administer prescribed medication.

Supervised Drug Administration

Supervised drug administration or supervised “drug rounds” have been the backbone of pharmacological training for student nurses and midwives. Extra time and care should be taken to ensure that the learner understands the reason the medication is being administered, why it has been prescribed, possible interactions, side effects and contraindications.

The 6 rights of safe drug administration are often used to support safe and effective drug administration:

- Right Patient
- Right Medication
- Right Route
- Right Dose
- Right Time
- Right to Refuse

Using this can help reduce the risk of medication administration errors. An example of administering medicines safely and effectively in a care home setting, including using the ‘6 R’s’ this can be found on the NICE website here.

Point for consideration:

Medication rounds are good to use as teaching opportunities, but the stage of the student and how much exposure they have had to the practice setting must be considered. Using a graduated approach, starting with a single patient first and building up as students’ progress through their programmes to full patient quota may be more beneficial for student learning.

Practice discussion

At its most basic, pharmacology training can take the form of a discussion. This could be talking about various families of drugs, common drugs used within the practice learning environment and management strategies used by staff. Patients, family members or carers are often the best teachers of students when it comes to medications as they provide a real life background context as to why a medication was prescribed, the advantages and disadvantages of taking the medication, any side effects they have encountered as well as the dosage of the medication they are taking and why. It is also an opportunity for the encounter to be reciprocal if the you or the student identifies gaps in the knowledge and skills of the patient, family member or carer in relation to the medications.

Project

Self-Directed Learning projects are a popular method of pharmacology education. This can take a variety of forms, including but not limited to; pharmacology workbooks, presentations to other learners, scavenger hunts (see Appendix 3) and poster projects for display on the ward/ department notice board.

Below is an example of a piece of work that a learner could be involved in.

Example student activity:

Please collate a list of commonly used medications within this clinical area. Consider and demonstrate knowledge relating to these medications through discussion with your PS/PA. Please consider:

- Reasons why each medication may be prescribed
- Usual dosages
- Possible side effects and possible contraindications
- Possible drug interactions
- Usual timing of administrations
- Any specific medication advice to be considered

PAD and or MPAD

Undertaking this activity could support achievement of Outcomes 3.2, 3.3,3.14, 4.5, 4.15, 4.16, 4.17 / Skills 1.8, Procedures 11.2, 11.4, 11.5, 11.6, 11.10, 11.11.

Reflection

Reflection has historically been utilised as a tool following adverse events, however, reflection can be a useful tool following positive events and to reflect upon learning.

There are many ways in which the PA and PS can support a learner to reflect:

- Discussion following the learning opportunity - what went well, what could have been better?
- Asking the learner to complete a reflective template, examples of templates:
  - NMC Reflection template
  - Driscoll
  - Gibbs
  - or learners own personal choice

The following learning activities can be used by students to support their learning and provide a platform for reflective discussions with the practice assessor (PA) and practice supervisor (PS) to work towards attainment of programme proficiencies.

Choose which activities would be relevant to your field of Nursing or Midwifery.

The activities that follow will support the following learning outcomes:

- Recognise the various procedural routes under which medicines can be prescribed, supplied, dispensed and administered; the laws, policies, regulations and guidance that underpin them.
- Carry out initial and continued assessments of people receiving care and their ability to self- administer medications.
- Exercise professional accountability in ensuring the safe administration of medicines to those receiving care.
- Consider alignment of the tools within this resource to the proficiency domains within the PAD / MPAD

Learning Activity

Consider the NMC standards of proficiency for registered nurses or midwives plus the PAD or MPAD outcomes and have a discussion with your PA or PS to identify the pharmacological learning opportunities within this clinical environment area.

When you have your initial discussion remember to identify pharmacological opportunities that are available within your PLE and document as learning objectives in your PAD/MPAD.

(PAD and/or MPAD proficiency domains – 6.87.1, 6.89.1, 6.89.2)

Learning Activity

Following review of the NMC standards now take some time to consider your pre- placement work, within your practice assessment document (PAD/MPAD), have you identified any learning needs?

Document them in the form provided below.

Identified Learning Need	**Example** **Having reviewed the MPAD and standards proficiency for midwives I have identified that I need to:** **● Gain more understanding of pharmacology relating to lactation** **● Recognise the impact of medicines in breast milk** **Domains: 6.3.1, 6.50.9, 6.50.10, 6.87.1, 6.87.2, 6.83.1, 6.89.1, 6.89.2,**
Actions to achieve learning needs and proficiency domains	**1.Identify what sources of pharmacology information and local expertise are available within your clinical environment. You could direct the student to read the documents below:** • **https://www.breastfeedingnetwork.org.uk/drugs-factsheets/** • **https://www.nhs.uk/conditions/pregnancy-and-baby/breastfeeding-and-medicines**

	2. Engage with opportunities to safely administer medications in practice to achieve more understanding and knowledge **3. Build a record of medicines (both prescribed and recreational), route of maternal administration, action of medication, transference levels in breastmilk, side effects on mum and side-effects on baby, timing of administration considerations, aiming to establish more understanding of medication impact on the neonate and contraindications for maternal use**
Learning Need	
Actions to Achieve	

Learning Activity

This learning activity will help you to develop an understanding of the types of medicines used within this clinical area.

List the most commonly used medicines detailing their indications for use, side effects, route of administration and considerations prior to administration (an example has been provided in the first row) in the form below.

Discuss your findings with your PS/PA. You may want to focus on a small group of patients that you are involved in providing care to.

(Platforms 1.2,1.3, 2.6,2.8, 2.9, 2.10, 3.2, 3.3, 3.6, 3.14, 4.5, 4.15, 4.16, 4.17 / Procedures 1.1, 11.1 11.2, 11.6; MPAD proficiency domains: 3.18, 3.19, 6.1.5, 6.3.1, 6.50.2, 6.50.4, 6.50.6, 6.50.7, 6.50.9, 6.50.10, 6.53.1, 6.73.1, 6.73.2, 6.83.1)

Drug Name	Indications for use	Side effects	Route of administration	Considerations prior to administration
Example Digoxin	*Digitalisation for Atrial Fibrillation or Atrial Flutter*	*Bradycardia, arrythmia, heart block*	*Oral or IV*	*HR >60 Previous arrythmia hypercalcemia*

This resource is for PS/PAs of both student nurses and student midwives, therefore the following 2 activities are specific to the role of a midwife.

The NMC Standards of proficiency for midwives (2021) and Schedule 17 of the Human Medicines Regulations (midwives exemptions) (2012) underpin education, safe practice and pharmacology related competence for midwives. The midwife's exemptions remain active and this document offers guidance on the set administration, sale and supply of medicinal products by midwives

Learning Activity

NMC standards of proficiency for midwives – skill 6.50.4

What are the midwifery exemptions? – (schedule 17 of the Human Medicines Regulation (midwives exemptions))

You are supporting Continuity of Carer. List some medicines listed within midwifery exemptions and recognise how the prescribing and administration processes are embedded in practice within your clinical area.

(MPAD proficiency domains: 3.18, 3.19, 6.50.1, 6.50.2, 6.50.3, 6.50.4, 6.50.6, 6.50.7, 6.50.8, 6.73.1, 6.83.1)

Medication	Local prescribing and administration processes, in relation to midwife exemptions

Learning Activity

NMC Standards of proficiency for midwives – skill 6.50.2 controlled drugs and home births.

Consider the NMC Standards, Midwife exemptions and the document 'Practicing as a midwife in the UK (2019c)'.

You are preparing and risk assessing for a home birth. Consider the implications for practice and document your findings in the template below.

(MPAD proficiency domains: 3.18, 3.19, 6.50, 6.50.1, 6.50.2, 6.50.3, 6.50.4, 6.50.6, 6.50.7, 6.50.8, 6.73.1, 6.83.1)

Medication	Implications on safe prescribing, transfer, storage and administration and disposal of medications for home birth experience

Learning Activity

This section contains some scenarios that have been created which students can work through and discuss with their PA/ PS. The scenarios can be used to support reflective conversations towards attainment of student's proficiencies in line with the new NMC standards and The Code. Students can document findings in the space below.

(Platforms 1.2,1.3, 2.6,2.8, 2.9, 2.10, 3.2, 3.3, 3.6, 3.14, 4.5,4.14, 4.15, 4.16, 4.17 / Skills 2.1, Procedures 1.1, 11.1 11.2, 11.6)

Scenario 1

You have been asked by your PS to be second checker for a complex controlled drug calculation.

What would you do in this situation and why? You may wish to read sections 6 and 13 of the NMC Code of Conduct (2015).

(MPAD proficiency domains: 3.18, 3.19, 6.50.2, 6.50.3, 6.50.5, 6.50.6, 6.50.7, 6.1.5, 6.73.1, 6.83.1, 6.87.2, 6.89.2, 6.3.1.)

Scenario 2

A patient that you administered medication to states that they felt unwell following taking the medication. What would you do in this situation and why?

(MPAD proficiency domains: 6.50.7, 6.50.9, 6.73.1, 6.73.2, 6.73.3, 6.74, 6.83.1.)

Scenario 3

Whilst you are undertaking the drug round with your PA/ PS you discover that a drug error has been made. What should you do and why?

(MPAD proficiency domains: 1.1, 1.11, 1.12, 1.14, 1.15, 1.19, 3.18, 5.4, 5.5, 5.6, 5.13.2, 5.13.3, 6.1.6, 6.1.5, 6.13, 6.7, 6.4, 6.4.2, 6.2.5, 6.2.3, 6.50.7, 6.83.1.)

Scenario 4

Your patient is due oral medications, however, has been vomiting. What should you do and why?

(MPAD proficiency domains: 1.1, 1.11, 1.12, 1.14, 3.18, 3.19, 5.13.2, 5.9, 6.1.6, 6.13, 6.1.5, 6.7, 6.4, 6.4.2, 6.50.7, 6.50.9.)

Scenario 5

A patient is admitted under your care and when you ask the patient if they are taking any medication at home the patient reveals that they are unsure of what medicines they are prescribed and show you a large bag of various medicines. What steps could you put in place to support the patient with safe medicine administration? And why?

(MPAD proficiency domains: 1.1, 1.11, 1.12, 1.14, 3.18, 3.19, 5.13.2, 5.13.3, 6.1.5, 6.1.6, 6.13, 6.2.8, 6.4, 6.4.2, 6.50, 6.50.1, 6.50.2, 6.50.7, 6.7, 6.87.2.)

Scenario 6

A patient under your care has been receiving intravenous antibiotics for treatment of a urinary tract infection for the past 5 days. You return from your days off and are pleased to see that the patient is clinically improving, and you see that the patient continues to receive the same intravenous antibiotic therapy.

Should you be concerned? Are there any local policies you could refer to?

(MPAD proficiency domains: 1.1, 1.11, 1.12, 1.14, 1.15, 1.19, 3.18, 3.19, 6.13, 6.50.7, 6.7, 6.83.1.)

Remember there are resources in Appendix 4 you may find helpful when considering the above scenarios.

Injections

The NMC Standards of proficiency for registered nurses (NMC 2018a) indicate that administering injections using intramuscular, subcutaneous, intradermal and intravenous routes and managing injection equipment is a procedural competency required at the point of registration.

Point to consider as a practice supervisor or practice assessor:

What opportunities are available within your practice environment in relation to injections?

Are you aware of the underlying theory students have received in relation to intramuscular, subcutaneous, intradermal and intravenous routes of injection?

Are you aware of the resources e.g., eLearning module, eResource, video, simulated practice, worksheets etc... students have completed in relation to intramuscular, subcutaneous, intradermal and intravenous routes of injection?

Considering these points will allow you to plan appropriate learning opportunities for students at different stages in their programme of study and enable you to frame your questions on a student's underlying theoretical knowledge at an appropriate level.

Capacity and Consent

This section has been developed to help support the learner to support an increase in knowledge around capacity and consent. Throughout this section the learner will find scenarios and activities that can be used for discussion with the Practice Supervisor/s (PS) and Practice Assessor (PA) to evidence their learning. The platforms and skills that the scenarios and activities can be linked to are highlighted. You may wish to use some of your reflections for your reflective diary.

Following completion of these activities a student will have:

- Explored the concepts of capacity and consent in relation to medication and pharmacology
- Identified the learning opportunities to achieve during this Practice Learning Environment (PLE)
- Explored the concept of covert medications applied in practice
- Worked through the activities to expand your knowledge on capacity and consent in relation to your current PLE

Learning activity

Initial Discussion

Have a conversation with your PS/PA about capacity and consent in relation to medication in your current area of practice and document in the box below the anticipated practice opportunities available.

Some questions you may wish to consider are:

- **What aspects of this topic are relevant in the current area?**
- **What documents available in the practice area around this are pertinent to become familiar with?**

Learning activity

What is capacity?

(Platforms 1.2,1.3, 2.6,2.8, 2.9, 2.10, 3.2, 3.3, 3.6, 3.14, 4.5, 4.15, 4.16, 4.17 / Skills 2.1, Procedures 1.1, 11.1 11.2, 11.6)

- **Define what you think capacity is in relation to medications.**
- **Examine your current client group and consider what may affect their capacity.**
- **How is capacity assessed?**
- **What assessment barriers could you foresee and how would you approach this?**
- **Reflect on your understanding of The Adults with Incapacity (Scotland) Act 2000 and Power of Attorney (POA), implications and how they may be applied for medication purposes in your current PLE.**
- **What other influences may affect capacity?**
- **How would you approach someone who has capacity refusing treatment – for example a patient with diabetes, who refuses to comply with medications, but are aware of the consequences?**

Below are some resources to help you reflect on capacity:

- NHS Education for Scotland Think Capacity Think Consent Learning resource https://learn.nes.nhs.scot/28332/coronavirus-covid-19/assessment-and-care-of-people-with-covid-19/think-capacity-think-consent
- NHS Highland information on Adults with Incapacity https://www.nhshighland.scot.nhs.uk/services/asc/incapacity/pages/welcome.aspx

- NHS Greater Glasgow and Clyde resources on adults with incapacity https://www.nhsggc.org.uk/about-us/professional-support-sites/learning-modules-for-staff/adults-with-incapacity/
- The advanced Practice Resource from NES has a useful section on law and ethics, containing information on capacity and consent https://www.advancedpractice.scot.nhs.uk/law-ethics.aspx

What are Covert Medications?

Covert administration of medicines is a complex issue and involves disguising the administration of a medicine (e.g., in food or drink) to a patient lacking the capacity to consent to treatment. Adults should not be given medicines covertly unless they have been assessed as lacking the mental capacity to make decisions about their health or medicines.

If they lack capacity to make these decisions and it is assessed as being in their best interests, they may need to be given medicines without their knowledge or consent (e.g., hidden in food or drink). The National Institute for Care and Excellence (NICE) have created published information about covert medications that can be accessed here

Learning activity

Covert medications

(Platforms 1.2,1.3, 1.16, 2.6,2.8, 2.9, 2.10, 3.3, 3.6, 3.14, 4.5, 4.15, 4.16, 4.17 / Procedures 1.1, 11.1, 11.2, 11.5, 11.6)

The Mental Welfare Commission for Scotland Good Practice Guide on Covert Medication (https://www.mwcscot.org.uk/sites/default/files/2019-06/covert_medication.pdf) provides a guide to this topic.

- **Please go to page 2 of the document and work through the scenarios with your practice supervisor**.

There are lots of legal and ethical issues that surround capacity and determining a person's best interest. Please explore the links below for further information.

- http://www.healthliteracyplace.org.uk/

- https://www.nhsinform.scot/media/1301/caring-and-consent-leaflet-v3-english.pdf
- https://www.nes.scot.nhs.uk/media/1557644/capacity_and_consent-interactive.pdf
- https://www.mwcscot.org.uk/law-and-rights/adults-incapacity-act
- Local Health board Policies on intranet

What is Consent?

Consent to treatment means a person must give permission before they receive any type of medical treatment, test or examination. This must be done on the basis of an explanation by a clinician/professional. Consent from a patient is needed regardless of the procedure. The principle of consent is an important part of medical ethics and international human rights law. Consent can be voluntary, informed or based on capacity.

Learning activity

Scenario:

Albert is a 78 year old man with a diagnosis of dementia, type 2 diabetes mellitus and chronic obstructive pulmonary disease. He is admitted to hospital with worsening blood sugar levels and a new delirium. The medical team suggest commencing sub-cutaneous insulin to help control his blood sugars, but Albert refuses to have the injections. His son informs the doctor that he has power of attorney and wants his father to have the insulin as he believes this will benefit him and improve his quality of life.

Reflect and discuss with your practice Supervisor/Practice Assessor:

- **What do you think consent is and the different forms it can be given?**
- **How would consent be given?**
- **When is consent not needed?**
- **Who is able to give consent?**
- **The use of Power of Attorney and Adults with Incapacity**

(Platforms 1.1, 1.2, 1.12, 1.16, 2.6,2.8, 2.9, 2.10, 3.3 3.6, 9.8, 3.14, 4.5, 4.15, 4.16, 4.17 / Skills Procedures 1.1, 11.1 11.2, 11.6)

For further information on consent please access these links that explore the topic discussed further:

- https://www.nhs.uk/conditions/consent-to-treatment/
- https://www.mwcscot.org.uk/sites/default/files/2019-06/consent_to_treatment_2018.pdf
- https://www.mwcscot.org.uk/law-and-rights#:~:text=Mental%20Health%20Act,Act%20calls%20this%20mental%20d

isorder.&text=Most%20of%20the%20time%2C%20when,understand%20that%20they%20need%20treatment.

Children and Young people

People aged 16 or over are entitled to consent to their own treatment. This can only be overruled in exceptional circumstances.

Like adults, young people (aged 16 or 17) are presumed to have sufficient capacity to decide on their own medical treatment, unless there's significant evidence to suggest otherwise.

Children under the age of 16 can consent to their own treatment if they're believed to have enough intelligence, competence and understanding to fully appreciate what's involved in their treatment. This is known as being Gillick competent (https://learning.nspcc.org.uk/child-protection-system/gillick-competence-fraser-guidelines)

Details can be found in the Age of Legal capacity (Scotland) Act 1991 under section 2 (4) http://www.legislation.gov.uk/ukpga/1991/50/contents

Otherwise, someone with parental responsibility can consent for them. Further details can be found at in this General Medical Council Ethical Guidance for Doctors 0-18 years making decisions publication, which can be accessed at https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors/0-18-years/making-decisions

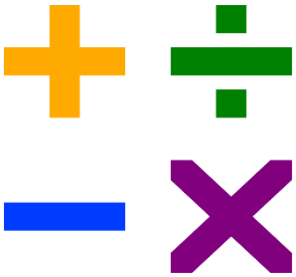
Further Reading

- Adults with Incapacity Scottish Government information site: https://www2.gov.scot/Publications/2008/03/25120154/1

Power of Attorney and Guardianship information can be accessed at the public guardian Scotland web site, in particular the following links may be helpful:

- https://www.publicguardian-scotland.gov.uk/power-of-attorney
- https://www.publicguardian-scotland.gov.uk/guardianship-orders

Drug calculations



The following section has been developed to support you as a PS/PA to support your students. It has been written so you can copy it and use it directly with your students.

Introduction

This section has been developed to help support your learning and evidence your competencies in a practice learning environment. It will provide you with scenarios to discuss with your Practice Supervisor/s and Practice Assessor and to highlight appropriate activities to enhance the learning in the area. The platforms and skills that the scenarios and activities can be linked to are highlighted. This will allow you to have further discussion with your PS/PA about your current practice learning experience area and how to achieve the skills and competencies' relating to drug calculations. You may wish to use some of your reflections for your reflective diary.

Learning outcomes

Following completion of this unit you will have:

- explored the professional issues around drug calculations
- Identified learning experiences to achieve during this PLE
- Undertaken drug calculations competently

It is important when calculating drug dose to find a method that is safe and suits your style of learning. Below are some suggested formulas for you to try. Remember to have a conversation with your PS'PA about your previous experience of medicine administration. Your PS/PA may ask you to bring in your drug calculations workbook/previous activities you have undertaken in the university, so you have a benchmark to start.

Converting from one unit to another

To convert from a larger unit to a smaller unit – multiply by 1000

To convert from a smaller unit to a larger unit – divide by 1000

Multiply x

Kg g mg microgram nanogram

Divide ÷

Calculating dose as volume (or tablets)

Used when calculating how much volume (or how many tablets) you need to give the patient to give the prescribed dose.

$$\frac{\textbf{Want}}{\textbf{Got}} \times \textbf{IN} = \textbf{Volume}$$

OR

$$\frac{\text{What you } \textbf{WANT} \text{ (prescribed dose)}}{\text{What you have } \textbf{GOT} \text{ (dose available)}} \times \text{what is } \textbf{IN} \text{ (ml) (or tablets) = the } \textbf{volume}$$

Concentrations and Strengths

Used when calculating how much volume you need to dilute a certain drug to get it to a stated concentration.

$$\frac{\text{What you } \textbf{HAVE} \text{ prescribed(mg)}}{\textbf{Concentration} \text{ (mg/ml) recommended}} = \textbf{volume (ml)}$$

Duration of Infusion

Used when calculating how long it will take to administer a drug.

$$\frac{\textbf{Dose (mg)}}{\textbf{Rate (mg/min)}} = \textbf{Time (min)}$$

If calculating an hourly rate (to set a device for example) then:

$$\frac{\textbf{Diluted Vol (ml)}}{\textbf{Time (min)}} = \textbf{Rate (ml/min) x 60 = Rate (ml/hr)}$$

Infusion Rate Calculations (Dose in micrograms/minute)

Used to calculate infusion rate when dose is prescribed in micrograms/minute.

$$\frac{\text{What you } \textbf{WANT} \text{ (dose) } \textbf{x 60} \text{ (mins in hour)}}{\text{What you have } \textbf{GOT}} \times \text{what is } \textbf{IN = Rate (ml/hr)}$$

Learning Activities for drug calculations

The following learning activities may be useful for you complete. You can use some or all these examples- your PS/PA will guide you.

(These activities have been mapped to the Platforms from the Future Nurse: Standards of Proficiency for registered nurses, and the Platforms are - 1.2,1.3, 1.16, 2.6,2.8, 2.9, 2.10, 3.3 3.6, 9.8, 3.14, 4.5, 4.15, 4.16, 4.17 / Skills Annex A 2.1, Skills Annex B 1.1, 11.1 11.2, 11.6)

Professional issues – Learning Activity

This activity will allow you to examine some of the aspects of drug administration and calculations. Take some time to write some notes and discuss with your PS/PA.

(Platforms 1.3, 1.15, 3.2, 3.3, 4.5, 4.14, 4.15, 4.16, 4.17 / Skills 1.8 / Procedures 11.2, 11.3, 11.4, 11.5, 11.6, 11.8, 11.9)

1. **You are about to administer a patient's 10pm drugs and you notice that the 2pm drugs were not given and there is no code stating the reason why. What would you do and is this a drug error?**
2. **You are asked to check a controlled drug with your practice supervisor just as your shift is about to end. You do so, then your practice supervisor tells you to go home. You have checked the medication, but it has not yet been administered. What should you do?**
3. **Before administrating any medication, do you require to have knowledge and understanding of appropriate interventions relating to anaphylaxis?**
4. **Whilst doing the drug round you and your practice supervisor are interrupted by another member of staff. The distraction causes you both to forget to record the reason why you did not administer the prescribed medication to your patient. Would this be considered a breach in your duty of care?**
5. **You undertake a complex drug calculation using the calculator on your mobile phone. If an error occurred could you be held in breach of your duty of care?**

Further reading

To explore some of the professional issues identified during the discussions around the scenarios above, please access the links below:

- A Royal Collage of Nursing (RCN) resource on medicine management https://www.rcn.org.uk/clinical-topics/medicines-management/professional-resources
- Journal article on Legal, Ethical and Professional Aspects of Duty of Care for Nurses https://journals.rcni.com/doi/pdf/10.7748/ns.2017.e10959
- Journal article on Ethical Issues on Resuscitation and Intensive Care Medicine (issues around consent)

https://www.sciencedirect.com/science/article/pii/S1472029909002872?via%3Dihub

- RCN Duty of Care Resource https://www.rcn.org.uk/get-help/rcn-advice/duty-of-care
- NMC Code of conduct https://www.nmc.org.uk/globalassets/sitedocuments/nmc-publications/nmc-code.pdf
- Duty of Care in Social Settings https://www.scie.org.uk/workforce/induction/standards/cis05_dutyofcare.asp
- Journal Article Medication errors: professional issues and concerns https://journals.rcni.com/doi/pdf/10.7748/nop2006.04.18.3.27.c2419
- NMC resource Delegation and Accountability https://www.nmc.org.uk/globalassets/sitedocuments/nmc-publications/delegation-and-accountability-supplementary-information-to-the-nmc-code.pdf

Learning activity - Drug Calculations

Work through these examples and discuss with your practice supervisor or assessor.

1. **You have 75micrograms of Levothyroxine. What would this be in milligrams?**

2. **Your patient has been prescribed 500micrograms of colchicine, what would this be in milligrams?**

3. **How many micrograms are there in 0.3milligrams?**

4. **You are required to administer 1gram of paracetamol. The bottle contains 250mg in 5ml. How many ml do you need to give?**

5. **You are required to administer 750mg of carbocistine. The bottle contains 250mg in 5ml. How many ml do you need to give?**

6. **You require to administer 7500units of Daltaparin. The Vial contains 10000 units in 1ml. How much do you require to draw up?**

7. **You require to administer 7.5mg of Ramipril. You check the cupboard and there is only 2.5mg tablets available. How many tablets would be required?**

8. **Your patient weights 70kg, they are prescribed a dose of Ibuprofen as 6mg/kg. What does would be required?**

9. **Your patient is prescribed 900mg Amiodarone diluted in a 500ml bag of 5% dextrose to be given over 24 hours. What would the rate be in ml/hour?**

10. **500ml of fluid has to be given to your patient over 3 hours. What would the infusion rate be ml/hr?**

11. **1:1000 strength means that in every 1000mL of solution you will find 1g of medicine. Therefore, how many mg of Adrenaline would there be in 0.5mL of 1:1000 Adrenaline?**

12. **A 1% (w/v) solution means that in every 100mL of solution you will find 1g of medicine. Therefore, how many g of glucose would there be in 500mL of 5% glucose?**

13. **Your patient requires 30mg oral prednisolone. You only have 5 mg tablets in your cupboard, how many tablets are required?**

Once completed the answers to these questions can be found in Appendix 5

Further interactive scenarios to practice calculations can be accessed at:

http://www.nursingnumeracy.info/index.html

http://www.dosagehelp.com/

RCN Resources to practice and gain confidence with maths that you will encounter in everyday nursing

- https://www.rcn.org.uk/clinical-topics/safety-in-numbers
- RCN Dyslexia, dyspraxia and dyscalculia: A toolkit for nursing staff

Useful journal articles on medicine administration and calculations

- https://www.nursingtimes.net/clinical-archive/medicine-management/medicines-administration-1-understanding-routes-of-administration-24-04-2020/
- https://www.nursingtimes.net/clinical-archive/medicine-management/medicines-administration-2-procedure-for-administration-of-oral-medicines-27-04-2020/
- https://www.nursingtimes.net/clinical-archive/medicine-management/how-to-calculate-drug-doses-and-infusion-rates-accurately-16-10-2017/

Professional Guidance on the Administration of Medicines in Healthcare Settings has been produced by the Royal Pharmaceutical Society (RPS) and Royal College of Nursing (RCN). It provides principles-based guidance to ensure the safe administration of medicines by healthcare professionals and can be accessed by following this link:

- https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Professional%20standards/SSHM%20and%20Admin/Admin%20of%20Meds%20prof%20guidance.pdf?ver=2019-01-23-145026-567

Useful resources which focus on intravenous medicine safety including further drug calculation practice can be found on Turas learn intravenous medicines administration: -

- https://learn.nes.nhs.scot/19392/clinical-skills-managed-educational-network/educational-resources/intravenous-medicines-administration

Reflection on this resource

PS/PA - Now that you completed the relevant parts of this resource, is there anything that you now do differently Reflect on what you have learnt and write down some new ways that you are supporting the learners in your area?

References

BINE (2016) Quality Assurance Framework for Biosciences in Pre- Registration Nursing Programmes. [Online] Available: https://s3.eu-west-2.amazonaws.com/assets.creode.advancehe-document-manager/documents/hea/private/bine_biosciences_qa_framework_b-qaf_july_16_1568037218.pdf . [Accessed: 03/12/2020].

Centre For The Advancement Of Interprofessional Education (CAIPE) (2002). [Online] available at http://www.caipe.org.uk/about-us/defining-ipe/ [Accessed: 22/12/2020].

Moloney, Kingston, and Doody. (2020). Fourth year nursing students' perceptions of their educational preparation in medication management: An interpretative phenomenological study. Nurse Education Today, 92, p.104512.

National Institute for Care and Excellence (2019) A quick guide for care home managers and home care managers providing medicines support Available at <https://www.nice.org.uk/about/nice-communities/social-care/quick-guides/giving-medicines-covertly>

Nursing and Midwifery Council (2018a) Future Nurse: Standards of proficiency for registered nurses. NMC, London. Available at: https://www.nmc.org.uk/globalassets/sitedocuments/standards-of-proficiency/nurses/future-nurse-proficiencies.pdf (accessed 23/12/20.

Nursing and Midwifery Council (2018b) Realising Professionalism: Standards for Education and Training. Part 3: Standards for pre-registration nursing programmes. NMC, London. Available at: https://www.nmc.org.uk/globalassets/sitedocuments/standards-of-proficiency/standards-for-pre-registration-nursing-programmes/programme-standards-nursing.pdf (accessed 10/12/20)

Nursing and Midwifery Council (2018c) Realising professionalism: Standards for education and training. Part 3: Standards for prescribing programmes. NMC, London. Available at: https://bit.ly/3hBorRg (accessed 02/12/20)

Nursing and Midwifery Council (2018d) The Code: Professional standards of practice and behaviour for nurses, midwives and nursing associates. NMC, London. Available at: https://www.nmc.org.uk/standards/code (accessed 10/12/20)

Nursing and Midwifery Council. Standards of proficiencies for midwives. (2019a) https://www.nmc.org.uk/globalassets/sitedocuments/standards/standards-of-proficiency-for-midwives.pdf (accessed 17/12/20)

Nursing and Midwifery Council (2019b) Realising Professionalism: Standards for Education and Training. Part 3: Standards for pre-registration midwifery programmes. NMC, London. Available at: https://www.nmc.org.uk/globalassets/sitedocuments/standards/standards-for-pre-registration-midwifery-programmes.pdf (accessed 10/12/20)

Nursing and Midwifery Council (2021) Practising as a midwife in the UK.(Online) Available: https://www.nmc.org.uk/globalassets/sitedocuments/nmc-publications/practising-as-a-midwife-in-the-uk.pdf (Accessed 14/07/21)

Pendleton, Schofield, Tate and Havelock (1984). The consultation: an approach to learning and teaching. Oxford, United Kingdom: Oxford University Press.

Paterson and Wood. (2019). Pharmacology content in pre-registration curricula: evidence to support implementation. Journal of Prescribing Practice, 1(6), pp.274-275.

The Human Medicines Regulations (2012) (No.1916) The Stationery Office, London

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Appendix 1

At the point of registration, the register nurse will be able to:	
Outcomes:	
3.2	demonstrate and apply knowledge of body systems and homeostasis, human anatomy and physiology, biology, genomics, pharmacology and social and behavioural sciences when undertaking full and accurate person-centred nursing assessments and developing appropriate care plans
3.3	demonstrate and apply knowledge of all commonly encountered mental, physical, behavioural and cognitive health conditions, medication usage and treatments when undertaking full and accurate assessments of nursing care needs and when developing, prioritising and reviewing person-centred care plans
4.14	understand the principles of safe and effective administration and optimisation of medicines in accordance with local and national policies and demonstrate proficiency and accuracy when calculating dosages of prescribed medicines
4.15	demonstrate knowledge of pharmacology and the ability to recognise the effects of medicines, allergies, drug sensitivities, side effects, contraindications, incompatibilities, adverse reactions, prescribing errors and the impact of polypharmacy and over the counter medication usage
4.16	demonstrate knowledge of how prescriptions can be generated, the role of generic, unlicensed, and off-label prescribing and an understanding of the potential risks associated with these approaches to prescribing
4.17	apply knowledge of pharmacology to the care of people, demonstrating the ability to progress to a prescribing qualification following registration,
Procedures (Annex b)	
10.2	Manage and monitor effectiveness of analgesia
11.1	carry out initial and continued assessments of people receiving care and their ability to self-administer their own medications
11.2	recognise the various procedural routes under which medicines can be prescribed, supplied, dispensed and administered; and the laws, policies, regulations and guidance that underpin them
11.3	use the principles of safe remote prescribing and directions to administer medicines
11.4	undertake accurate drug calculations for a range of medications
11.5	undertake accurate checks, including transcription and titration, of any direction to supply or administer a medicinal product

11.6	exercise professional accountability in ensuring the safe administration of medicines to those receiving care
11.7	administer injections using intramuscular, subcutaneous, intradermal and intravenous routes and manage injection equipment
1.8	administer medications using a range of routes
11.9	administer and monitor medications using vascular access devices and enteral equipment
11.10	recognise and respond to adverse or abnormal reactions to medications
11.11	undertake safe storage, transportation and disposal of medicinal products.

NB: Annex B

The following procedures also include administration and management of medicines:

- Procedure 2.5 Manage and interpret cardiac monitors, infusion pumps, blood glucose monitors and other monitoring devices
- Procedure 6.5 Administer Enemas and suppositories and undertake rectal examinations and manual evacuation when appropriate
- Procedure 8.2 Manage the administration of oxygen using a range of routes and best practice approaches
- Manage inhalation, humidifier and nebuliser devises

Appendix 2

The midwifery proficiencies and skills are grouped under six domains;

This section contains the domains and related proficiency statements which can be aligned to Pharmacology scenarios.

Proficiency domain number	Statement
3.18	demonstrate knowledge and understanding of pharmacology and the ability to recognise the positive and adverse effects of medicines across the continuum of care; to include allergies, drug sensitivities, side effects, contraindications, incompatibilities, adverse reactions, prescribing errors and the impact of polypharmacy and over the counter medication usage
3.19	demonstrate knowledge and understanding of the principles of safe and effective administration and optimisation of prescription and non-prescription medicines and midwives exemptions, demonstrating the ability to progress to a prescribing qualification following registration
6.50	demonstrate the ability to work in partnership with the woman to assess and provide care and support across the continuum that ensures the safe administration of medicines
6.50.1	carry out initial and continued assessments of women and their ability to self-administer their own medications
6.50.2	recognise the various procedural routes under which medicines can be prescribed, supplied, dispensed and administered; and the laws, policies, regulations and guidance that underpin them
6.50.3	use the principles of safe remote prescribing and directions to administer medicines, including safe storage, transportation and disposal of medicinal products
6.50.4	demonstrate the ability to safely supply and administer medicines listed in Schedule 17 of the Human Medicines Regulations (midwives exemptions) and any subsequent legislation and demonstrate the ability to check the list regularly
6.50.5	undertake accurate drug calculations for a range of medications

6.50.6	undertake accurate checks, including transcription and titration, of any direction to supply and administer a medicinal product
6.50.7	exercise professional accountability in ensuring the safe administration of medicines, via a range of routes, to women and newborn infants
6.50.8	administer injections using intramuscular, subcutaneous, intradermal and intravenous routes and manage injection equipment
6.50.9	recognise and respond to adverse or abnormal reactions to medications for the woman and the newborn infant, and the potential impact on the fetus and the breastfed infant
6.50.10	recognise the impact of medicines in breastmilk and support the woman to continue to responsively feed her newborn infant and/or to express breastmilk
6.73.1	safe administration of medicines in an emergency
6.73.2	manage intravenous (IV) fluids including transfusion of blood and blood products
6.73.3	manage fluid and infusion pumps and devices
6.74	provide midwifery care for the women and newborn infant before, during, and after medical interventions, and collaborate with colleagues as needed, including epidural analgesia, fetal blood sampling, instrumental births, caesarean section and medical and surgical interventions to manage haemorrhage

Appendix 3

There are many different ways to use the tools in this resource, and it is important to target the approach to the level and stage of the learner.

For example, the Scavenger Hunt. A scavenger hunt can be a fun and engaging way to introduce the learner to pharmacology

Examples according to student's year:

Year 1

	Task	Completed
What	What are the most common medications used in the area?	
How	How is medication administered? Find all the different ways .	
Who	Who would you contact if you had a question about medication? Find this information	
Where	Where would you find the Medication Policy for your placement?	
When	When is the medication rounds?	

Year 2

	Task	Completed
What	What are the contra indications/ side effects of the most common medications used in this area?	
How	How did you feel administering medication? Reflect upon this.	
Who	Who administers controlled medications? Why is this?	

Where	Where and how do you record that you have administered medication to a patient? Find out the legal requirements	
When	When do you administer PRN medication? What requirements need to be met?	

Year 3

	Task	Completed
What	What are the considerations that should be considered with thinking about capacity and consent? Discuss with your practice supervisor.	
How	How do you store medication? Are there certain conditions that are required for some medications? Write down some of these medications, the conditions and why they are kept in these conditions.	
Who	Who would you contact in the event of a medication error? Where will this be recorded? What forms do you will out?	
Where	Where would you find information about certain conditions that are required for some medication to be administered? Look in to the pharmacokinetics of the most common medications	
When	When is appropriate to withhold medication? Where would this be	

	documented? Write down some examples	

Appendix 4

Online Resources

There are a number of useful online resources that can be used for teaching and learning of pharmacology. There are some examples listed below:

Resource and link	Description
Antibiotics: who's responsible?	The antibiotics - who's responsible video highlights the global threat of antibiotic resistance and how NES have responded with a range of educational resources to help support healthcare staff.
Breastfeeding and Medication	These sites are very useful when considering pharmacology in relation to pregnancy, the postnatal period and if a woman is breastfeeding her baby.
Breastfeeding Network	This site is very useful when considering pharmacology in relation to pregnancy, the postnatal period and if a woman is breastfeeding her baby.
British National Formulary	This online Resource provides student nurses with the opportunity to ○ Browse Drugs ○ Browse Interactions ○ Browse Treatment Summaries
Delegation and accountability	Supplementary information to the NMC Code
E-anaphylaxis	e-anaphylaxis learning module You will need to be logged into Turas Learn to access this module
Future nurse: Standards of proficiency for registered nurses	Future nurse: Standards of proficiency for registered nurses

Guidance on the professional duty of candour	Guidance on the professional duty of candour
Keep antibiotics working: 5 key messages	Resource for health and social care staff outlining key messages on keeping antibiotics working, with a focus on what, why, who, how and where.
Medicines Management: Professional resources	This page from the Royal College of Nursing will help you to find useful resources, standards and guidance to support medicines management.
Medusa	The Medusa Injectable Medicines Guide is a robust and detailed nationally produced resource. As well as IV drugs in adults, Medusa covers paediatric use, and intramuscular use of drugs.
NHS Learnpro	Some areas utilise “Learnpro” for nurse education. Students can search for specific medication related information using keywords e.g. T34 syringe pump, drugs, anaphylaxis
Nursing Numeracy	A good resource for staff and students to practice drug calculations. On the side panel there is a ‘take the assessment’ link which directs you to 30 questions on drug calculation.
Practising as a midwife in the UK	An overview of midwifery regulation
Professional guidance on the safe and secure handling of medicines	This professional guidance from the Royal Pharmaceutical Society details the four core governance principles that underpin a framework for the safe and secure handling of medicines and can be used to develop working practices, policies and procedures.
Raising Awareness of Antimicrobial Stewardship	Raising Awareness of Antimicrobial Stewardship - November 2019

Royal College of Midwives i-learn resources	Learning resources from RCM Membership and log-in required for access
Royal Marsden Manual of Clinical and Cancer Nursing Procedures	Access to the latest evidence and research relating to clinical and cancer procedures Please note – you will need to use your NHS Board/institution log in to access content
Safeguarding antibiotics : antimicrobial stewardship workbook	The safeguarding antibiotics workbook supports registered nurses and midwives learning around antimicrobial stewardship and supports the care of patients with infections.
Safe Medicate	Safe Medicate helps develop and assess competence for safe drug calculations.
Standards of proficiency for midwives	Standards of proficiency for midwives
The Code	Professional standards of practice and behaviour for nurses, midwives and nursing associates
Turas Learn	Students can search for specific medication related information using keywords: e.g. T34 Syringe pumps;drugs Or you can search for specific education resources: e.g. Intravenous drug administration: adult
Yellow Card Scheme	The Yellow Card scheme is the UK system for collecting and monitoring information on suspected safety concerns or incidents involving medicines and medical devices.

Appendix 5

Answers:

Drug Calculations Answers

1. 0.075mg
2. 0.5mg
3. 300micrograms
4. 20mls
5. 15mls
6. 0.75mls
7. 3 tablets
8. 420mg
9. 20.8mls/hr
10. 166.6mls/hr
11. 0.5grams
12. 5 grams
13. 6 tablets