**UG NURSING READINESS TO PRESCRIBE RESOURCE**

UPDATED MAY 22

**Part 1**

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| **Resource Module Title** | **Resource Sub Folder Titles** |
| Consultation, Communication and Clinical Decision Making | • [Effective communication](#bookmark=id.ol7z69avqati)  • [Assessment and Examination](#bookmark=id.73fl2a93aalc)   • References |
| Prescribing Safely, Appropriately and Cost Effectively | • [Safe Drug Calculations](#bookmark=id.73fl2a93aalc)  • References |
| Pharmacology | • [Basic Pharmacology – an introduction](#bookmark=id.tyjcwt)  • [Pharmacodynamics](#bookmark=id.mtrsq69lg85d)  • [Pharmacokinetics](#bookmark=id.wrliu2wnexh3)  • References  • Quiz |
| Legal and Professional Frameworks for Medicines Management and Non-Medical Prescribing | • [Medicines Legislation](#bookmark=id.3dy6vkm) • References |
| Prescribing Professionally | • [Applying the Professional Frameworks for Non-Medical Prescribing](#bookmark=id.uijks8rybp92)  • [Patient Records and Documentation](#bookmark=id.etkag0qmlwkg)  • [Patient Confidentiality](#bookmark=id.4d34og8)  • [Professional Ethics](#bookmark=id.2s8eyo1)  • References • Quiz |
| Public Health | • [Your Public Health Role](#bookmark=id.17dp8vu)  • [Smoking Cessation](#bookmark=id.3rdcrjn)  • References  •Quiz – Public Health (part 1) |
| Prescribing Governance | • [Evidence - Based Practice](#bookmark=id.dm5akf3np4a5)  • [The Importance of Reporting Errors](#bookmark=id.lnxbz9)  • [Prescription Pad and Data Security](#bookmark=id.35nkun2)  • References  • Quiz – Prescribing Governance (Part 1A)  • Quiz – Prescribing Governance (Part 1B) |

**Part 2**

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| **Resource Module Title** | **Resource Sub Folder Titles** |
| Pharmacology | • [Pharmacodynamics](#bookmark=id.1ksv4uv)  • [Pharmacokinetics](#bookmark=id.44sinio)  • [Adverse Drug Reactions](#bookmark=id.2bn6wsx)  • References  • Quiz - pharmacology (part 2) |
| Consultation, Communication and Clinical Decision Making | • [Effective Communication](#bookmark=id.vkn9ojp81cfy)  • [Assessment and Examination](#bookmark=id.z337ya)  • [Concordance, Adherence and Negotiating Contract](#bookmark=id.3j2qqm3)  • [History Taking, Clinical Decision Making and Diagnosis](#bookmark=id.1y810tw)  • References |
| Prescribing Safely, Appropriately and Cost Effectively | • [Preparing to Study the Principles of Prescribing Practice](#bookmark=id.azkc06v0b0q9)  • [Safe Drug Calculation](#bookmark=id.96mp4mnjmkxv)  • References |
| Prescribing Governance | • [Clinical Governance](#bookmark=id.4i7ojhp) |
| Public Health | • [Vaccination](#bookmark=id.2xcytpi)  • [Specific Public Health Issues](#bookmark=id.uj0azwlqf5e6)  • References  • Quiz - Public Health (part 2) |

**Part 3**

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| **Resource Module Title** | **Resource Sub Folder Titles** |
| Pharmacology | • [Pharmacology and Individual Variability](#bookmark=id.3whwml4)  • [Adverse Drug Reactions](#bookmark=id.2bn6wsx)  • [Drug Interactions](#bookmark=id.3h25cham4w8m)  • Quiz - Pharmacology (part 3)  • References |
| Consultation, Communication and Clinical Decision Making | • [Consultation Models](#bookmark=id.9lghdw86dpl7)  • References |
| Factors that influence Prescribing | •[Influences on Prescribing](#bookmark=id.ld2nlm2nfhvt) (in editing process – remove when done)  • References  • Quiz |
| Prescribing Safely, Appropriately and Cost Effectively | • [Principles of Prescribing Practice](#bookmark=id.67140yir60if)  • [Monitoring](#bookmark=id.158ldm54l0nc)  • E[ssentials for Safe Prescribing](#bookmark=id.aez3a5w3qsts)  • References |
| Legal and Professional Frameworks for Medicine Management and Non-Medical Prescribing | • [Prescribing Unlicensed Medicines and Off-Licence/Off Label](#bookmark=id.hf3momyntmfa)  • [Legal Mechanisms for Prescribing, Supply and Administration of Medicines](#bookmark=id.lzj60ogiaaon)  • References  • Quiz – Legislative Framework (Part 3) |
| Public Health | • [Prescribing for Specific Groups](#bookmark=id.cw58sir1jrsn)  • References |

**PART 1**

**PART 1 – CONSULTATION, COMMUNICATION AND CLINICAL DECISION MAKING**

**Effective Communication**

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| Activity 1:  **An observation exercise**  When out on placement, try and find the opportunity to observe a consultation in your practice area where the patient is accompanied by their spouse/carer:  • Take note of who responds to the practitioner’s questions  • Consider if there could be any difference in the perspective of the patient and carer in relation to the questions asked  • Reflect on what you observed. |

**Suggested content:**

• Communication methods and skills used by the professional

• Thoughts on managing a consultation where a carer is present and the challenges for maintaining a person-centred approach.

\*Why a patient and carer may have different ideas, concerns and expectations

• What they think was good and what could have been done differently. What this means for their own nursing practice.

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| Activity 2:  **Communication style.**  Reflect upon your own communication style with patients and consider the following questions:  • Who does most of the talking?  • Are there any elements of your communication skills that could be improved? |

**Suggested content**:

• Exploration of how well they use active listening skills and communication methods. The use of pauses and silence as well as questioning styles.

• Will have considered their own learning and points they will action with application to their own practice

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| Activity 3:  Watch the video following this section then consider these questions:  •what did you note about the facial expression of the individual?  • was the body language of the professional following **Egan's** SOLER?  • what did you note about the body language of the patient. Was it open/closed?  • what communication strategies did you notice i.e., open/closed questions, reflecting, summarising?  • what did you note about the pitch and tone of the nurse’s voice?  • what did you note about the pitch, tone and pace of the individual’s voice? |

**Suggested content:**

• Critical consideration of facial expression and its importance in developing a therapeutic rapport

• Reference to SOLER and an appraisal of the professional’s approach to SOLER

• Thoughts about communication strategies used and how well these were employed

• An understanding of the importance of paraverbal communication to the therapeutic relationship and rapport

**Assessment and Examination**

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| Activity 1:  Watch the following video excerpt and physically appraise Gerry as he walks to his chair. Then look at his environment.  1. What do you notice?  2. What is your assessment of Gerry's coping?  You might find it useful to use the SOMETEAMS mnemonic when answering these questions. |

**Suggested content:**

• Observations about the environment and some consideration of the importance of these observations to an assessment

• Application of SOME TEAMS to their assessment and observations.

**PART 1 – PRESCRIBING SAFELY, APPROPRIATELY AND COST EFFECTIVELY**

**Safe Drug Calculation**

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| Activity 1:  Calculation principles form the basis for safe and accurate drug calculations and require ongoing development. To do this your University will be providing resources alongside this one to enable you to do so. Find the numeracy resources your University has access to e.g. Snap Assessment and Education. |

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| Activity 2:  Access your University's numeracy resources and find additional numeracy quizzes. |

SN@P Assessment & Education offers support within the Preparing to Prescribe resource for clinical numeracy competency testing and skill building.

If you would like to arrange for a group of your students to have a free trial licence, please email [kieran@sn@p-ae.com](about:blank).

For existing licence holders, the links below provide further information for academic staff with regards to registering students for an account with SN@P:

Our Knowledge Base: <https://snap-ae.com/help/knowledge-base.php>  
User Support – please raise a support ticket at <https://snap-ae.com/create-support-ticket.php>

Access is provided by the university providing a spreadsheet including the names and university email addresses of students.

Information that could be provided to students on your library resources pages for students:

Your programme of study may provide you with free access to Sn@p Assessment and Education – a resource for practicing and developing your numeracy skills. Please ask your tutor or Programme Lead who will be able to arrange for your access. Alternatively limited free resources to support your numeracy development are available at [www.snap-ae.com](http://www.snap-ae.com) .

Login link: [www.snap-ae.com](http://www.snap-ae.com)

Password reset link: <https://snap-ae.com/forgot-password.php>

Request help from our support team: <https://snap-ae.com/create-support-ticket.php>

Set up an account: <https://snap-ae.com/registration.php>

Graphical user interface

Description automatically generated

**PART 1 – PHARMACOLOGY**

**Basic Pharmacology – an Introduction** [Menu](#_top)

Activity 1:

A number of drugs with both Non-Proprietary and Proprietary names are identified above.

Can you give any other examples of drugs which are given both a Non-Proprietary (Generic) name and Proprietary name?

**Suggested content:**

There is a wealth of examples which students could cite from the BNF. Ensure that the non-proprietary (Generic) drug name, which is given to the pharmaceutical drug or the active chemical is cited in lower case whereas the Trade name (identified by the pharmaceutical company) or Proprietary name starts with a capital letter.

Activity 2:

The table above lists different drugs along with a reason they might be given according to a particular mechanism of drug action.

Can you think of any other examples of drugs for each of the different drug actions?

Students may cite a range of examples from the BNF:

Stimulation: any drug which activates cell surface receptors, by mimicking the naturally-occurring ligand and act as an agonist could be given as examples eg adrenergic agonists (sympathomimetics) eg salbutamol, terbutaline sulfate, adrenaline / ephedrine.

Inhibition: any drug which binds to cell surface receptors, but ‘blocks’ the receptor site and does not influence cell function. Examples include: adrenergic antagonists eg prazosin. Other examples are anaesthetic agents, sedative drugs and neuromuscular agents

Replacement: any drug which is administered to ‘replace’ hormones eg Hormone Replacement Therapy for menopause, thyroxine for hypothyroidism thyroxine for hypothyroidism, or neurostransmitters eg. Levodopa for Parkinsons Disease.

Cytotoxic : any drug which directly kills cell population eg antivirals, antibacterials.

**Pharmacodynamics**

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| P3 Activity 1:  Before you begin to develop your understanding of the mode of action of drugs, it is important for you to review your understanding of related anatomy and physiology and remind yourself of some key definitions.  As you will see, drugs work in a variety of ways in the body. They may affect the way in which a cell functions, inhibit or activate enzyme systems in the body or directly influence other biological systems.  • Review your knowledge and understanding of the basic human cell. You will need to focus specifically on: • the structure of the cell membrane (fluid-mosaic model)  • the role of cell surface receptors and ion channels  • the processes of diffusion, facilitated diffusion, osmosis and active transport  • Develop your knowledge of the function of an 'enzyme' and give examples of enzyme reactions in the body |

**Suggested content**:

Fluid Mosaic Model (Singer & Nicholson 1972)

Students need to describe the structure of the Fluid Mosaic Model of the cell membrane proposed by Singer & Nicholson in 1972.  
It comprises the following:

1) a bilayer of phospholipids which allows for fluidity and movement

2) Protein molecules: these are either intrinsic (fully embedded in the membrane) or extrinsic (partially embedded).  
They act as a) Channel proteins which allows the movement of large molecules or those that are hydrophilic (water-liking) through the membrane b) Transport proteins which act as carrier system.  
This process is energy requiring e.g., active transport

3) Cholesterol which provides stability to the membrane

4) Glycolipids & Glycoproteins – act as cell surface receptors e.g., binding sites for hormones

Define: Diffusion: net movement of substances e.g., gases, solutes from a high concentration to a low concentration.  
This is a passive process i.e., not requiring energy e.g. movement of oxygen from the alveoli to the capillary network

Facilitated diffusion: as above but requires energy in the form of ATP

Osmosis: the net movement of solvents e.g., water across a selectively permeable membrane from a low concentration solution (i.e., dilute solution with lots of water) to a more concentrated solution (i.e., less water)

Active transport: movement of ions or molecules across a selectively permeable membrane against a concentration gradient i.e., from a low to a high concentration. Because this process is against the concentration gradient it requires energy in the form of ATP. May involve the action of carrier proteins

Enzyme: a protein, biological catalyst which regulates the rate of chemical reactions in the body. They are not changed by the reaction. Enzymes work within specific environmental conditions  
e.g., PH, temperature. There are many examples of enzyme reactions in the body e.g., digestive enzymes.

**Pharmacokinetics**

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| P4 Activity 1:  For oral administration explore what is understood by:  • Enteric coated tablet  • Slow-release tablet  Discuss why drugs are prescribed in this way. |

**Suggested content**:

Enteric coated tablets have an acid resistant coating often made of waxes, polymers or fatty acids. It protects the drug against the acidic properties of the stomach but dissolves readily in the more alkaline conditions of the intestine. By preventing the drug form dissolving in the stomach it may protect the stomach from the irritants of the drug itself. For example, aspirin which causes stomach irritation.

Enteric coating may also be used to prevent acid activated medication being stimulated in the mouth or oesophagus.  
For example omeprazole is a proton pump inhibitor that is activated in acidic conditions.

Slow-release tablets: these are designed to release consistent amount of medication over a prolonged period of time so the individual can medicate less often.  
They can help with compliance, reduce side effects and help sustain blood plasma levels, particularly for drugs with short half-life’s.

If slow-release tablets are crushed or split there is a danger that they may release the dose all at once.

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| P5 Activity 2:  Think of examples of drugs which can be administered by subcutaneous injection. Consider the sites of the body commonly used and think about the advantages and disadvantages for each site. |

**Suggested content**:

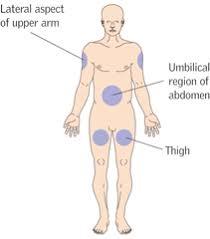
Examples of drugs administered vis subcutaneous injection are insulin and heparin.

Insulin is delivered by subcutaneous injection as it is almost completely destroyed by the gastro-intestinal system and heparin can cause haematomas if delivered intra-muscularly.

Drugs administered in the subcutaneous route are delivered into the fatty or subcutaneous tissue just below the skin.  
There are fewer blood vessels in the fatty tissue (as compared to muscle) therefore the drug is released more slowly and is therefore longer lasting.

There are several sites for subcutaneous injections but the most common are the stomach, the upper outer aspect of the numerus (top of the arm) and the upper anterior surface of the thigh.  
The abdomen is often reported as being the less painful site, however it may be easier for an individual who is self- administering medication to inject into the upper thigh.

Heparin is most commonly delivered in the stomach. This area has more fatty tissue and less muscular activity so therefore decreases the risk of haematoma.



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| P6 Activity 3:  Activity 3:  Review the different drug administration routes. For each route:  • Make note of why drugs might be given that way  • Give some examples  • Consider the advantages and disadvantages. |

**Suggested content**:

**Examples of drugs administered via various routes are as follows:**

**Oral**- Wide range of medications are taken orally such antibacterial drugs, antiviral drugs, analgesics, corticosteroids etc.

**Buccal-sublingual** – rescue medications such as midazolam to stop seizures, anti-angina medication such as GTN medication that is needed to act quickly in a potential medical emergency

**Intra-muscular route** – vaccines, opiod analgesics such as pethidine,

**Intravenous route** – a wide variety of drugs are available in intravenous form; they are much smaller in dose than oral doses due to the 100% bio-availability.

**Topical** – local anaesthetic creams/gels eg lidocaine, emollients for eczema, topical steroid cream such as hydrocortisone

**Inhalation** – medications administered via inhalers/nebulisers for example, salbutamol, ipratropium bromide

**Intra Osseous** (a route that’s not included on the table above) – used in emergency situations, often when venous access is difficult to access due to peripheral shut down in clinical shock. Medications and fluids can be administered via this route.

**Intrathecal** (a route not on the list above)- injection into the spinal canal, some chemotherapy drugs are administered this way such as methotrexate

**Trans – dermal** – these are medicines that are applied to the skin but have a systemic effect rather than a local effect for example, such as nicotine patches.

**PART 1 – LEGAL AND PROFESSIONAL FRAMEWORKS FOR MEDICINES MANAGEMENT AND NON-MEDICAL PRESCRIBING**

**Medicines Legislation**

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| Activity 1:  • Go to your Trust's Intranet and find the local policy for Naloxone administration  • According to your Trust Policy who can administer Naloxone? |

**Suggested content:**

The person(s) who can administer naloxone are identified accurately as per the Trust policy.

**Further expansion of the response could include information as follows:**

**1. Use of naloxone:**

Naloxone is used by a large variety of individuals: its relatively unique legal status means anyone can administer the drug for the purpose of saving a life and it is used by health care professionals across a range of disciplines (in emergency medicine, palliative care and anaesthesia).

However, there are a number of potential naloxone regimens, and determining which is appropriate needs to consider the risks both in giving too much and in giving too little, particularly in the context of drug misuse and dependence where there is a potential choice between higher and lower dose regimens.

**2. Competencies for the administration of naloxone:**

Administration of naloxone would normally be expected only to be undertaken by healthcare professionals competent in:

• the assessment of respiratory depression

• use of supplemental oxygen

• management of arrest

• selection of appropriate dose regimens and routes of administration

• management of acute withdrawal syndrome (AWS) from opioids.

**3. Medical role:**

A doctor is usually responsible for:

• Initial assessment of patient

• Stopping medication causing or contributing to respiratory depression

• Prescribing medication

• Cannulation

• Discussion with Consultant

• Administering boluses of naloxone

• remaining with the patient until the patient’s condition is satisfactory

**4. Nurse role:**

A nurse is usually responsible for:

• Monitoring respiratory rate

• Drawing up bolus naloxone

• Administering boluses of naloxone

• Making up and administering naloxone infusion

**5. Emergency use of naloxone:**

In an emergency, anyone can use any available naloxone to save a life. For “the purpose of saving life in an emergency”, drug services can supply naloxone, without prescription, to:

• an outreach worker

• a hostel manager

• a drug user at risk

• a carer, a friend, or a family member of a drug user at risk

• any individual working in an environment where there is a risk of overdose for which the naloxone may be useful.

Clinical guidance recommends that drug services provide suitable training and advice to people when supplying naloxone.

**6. Administration of naloxone by PGD:**

Administration of naloxone may be undertaken in accordance with a PGD, provided the healthcare professional is registered, and authorised to use the PGD.  
All staff would be expected to undertake training and to demonstrate their competence before using the PGD.

**Example of a PGD for use by nurses working in substance misuse teams:**

Sussex Partnership NHS Foundation Trust. Patient Group Direction (PGD) for the supply and/or administration of naloxone hydrochloride injection by Registered Nurses working in Community and Inpatient Substance Misuse Teams. Available at: <http://www.sussexpartnership.nhs.uk/sites/default/files/documents/microsoft_word_-_naloxone_supply_admin_pgd_sms_v5_-_0813.pdf>

**Example of guidance for the use of naloxone in the management of opioid-induced respiratory depression in palliative care:**

Northamptonshire Healthcare NHS Foundation Trust (2020) MMG021 Guidance on the use of Naloxone in the management of opioid-induced respiratory depression.  
Available at: <https://www.nhft.nhs.uk/download.cfm?doc=docm93jijm4n1533>

**Info:**   
 Department of Health and Social Care (2019) Widening the availability of naloxone: guidance.  
Available at: <https://www.gov.uk/government/publications/widening-the-availability-of-naloxone/widening-the-availability-of-naloxone>

UK Medicines Information (2019) What naloxone doses should be used in adults to urgently reverse the effects of opioids?  
Available at: <https://www.sps.nhs.uk/articles/what-naloxone-doses-should-be-used-in-adults-to-reverse-urgently-the-effects-of-opioids-or-opiates/>

**PART 1 – PRESCRIBING PROFESSIONALLY**

**Applying the Professional Frameworks for Non-Medical Prescribing** [Menu](#_top)

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| Activity 1:  **Professional Codes and Standards.**  Using the link below, access the NMC professional code/standards and refresh yourself on its content. When you are qualified and it is time for you to revalidate, the professional revalidation process requires registrants to demonstrate achievement of their code/standards. Consider which standard would relate to prescribing practice and how a nurse could evidence this.  NMC professional standards of practice and behaviour for nurses, midwives and nursing associates.  \*Link: <https://www.nmc.org.uk/standards/code/> |

**Prompt**

4 domains within The Code relate to

1. Prioritise people
2. Practice effectively
3. Preserve safety
4. Promote professionalism and trust

All domains are aligned with prescribing practice- ask students to consider why and give examples

Example to use

Prioritise people: can be demonstrated by allowing people access to timely services and support, medication may be given or altered responsive to the patients needs. Feedback and evaluation can be sought. This may be evidenced through a reflection

Practice effectively: can be demonstrated by showing evidence based practice, using clinical guidance such as NICE etc, this may be demonstrated through reflective practice, attendance at training and further CPD

**Patient Records and Documentation**

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| Activity 1:  **Understanding record keeping requirements.**  Access the following resources and study the record keeping and documentation guidelines for Non-Medical Prescribers carefully to determine the statutory requirements for patient records:  • Department of Health (2007) NHS Information Governance: guidance on Legal and Professional Obligations. Available online.  • Department of Health (2005) Supplementary Prescribing by Nurses, Pharmacists, Chiropodists/Podiatrists, Physiotherapists and Radiographers within the NHS in England. Available online.  • Department of Health (2006) Improving Patients’ Access to Medicines: a guide to implementing Nurse and Pharmacist Independent Prescribing within the NHS in England. Available online.  • Nursing and Midwifery Council (2018) The Code. Available online.  \*Links: <https://www.gov.uk/government/publications/nhs-information-governance-legal-and-professional-obligations> <https://webarchive.nationalarchives.gov.uk/20130124065910/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4110033.pdf> <https://webarchive.nationalarchives.gov.uk/20130105033522/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4133747.pdf>  <https://www.nmc.org.uk/standards/code/> |

**Prompt:**

The aim with this question is to decipher what is legal requirement and what may be construed as best practice. One example I use is by asking students if “a prescription would be legal and valid if documented on a piece of kitchen roll only”

Certain information must be included which includes:

* Signature of prescriber
* Name of prescriber
* Date
* Address of patient
* Medication to be used
* Frequency and dose
* Quantity to be prescribed

This is not an exhaustive list and further guidance could be gained [here](https://bnf.nice.org.uk/guidance/prescription-writing.html)

Thus; all the information above could be added to a piece of kitchen roll however it would not constitute best practice due to several reasons:

* does not allow for adequate verification
* harder to process for the pharmacist
* likely does not adhere to trust information and governance policy

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| Activity 2:  **Record Keeping Audit.**  Access the GAIN (2015) Audit on Record Keeping in the Acute Hospital Setting. Although the audit examined medical records, it is a useful report for all health professionals in highlighting the issues relating to record keeping.  \*Link: <https://www.rqia.org.uk/RQIA/files/cd/cdc82389-082c-45d3-b02a-499464d67452.pdf> |

**Prompt:**

Consider what you would be aiming to review- audits are essentially used to identify practice and or emerging themes

Key questions include;

* can this be measured i.e. percent of care plans signed and dated can be objectively reviewed
* evidence of nurses delivering bets care is subjective and not easily assessed- consider why?

What may be audited in record keeping?

* All documents are signed and dated
* Patients involved in care plan
* Review date included
* Standardised format or temple used

Again this list is not exhaustive but shows areas which may be addressed within this learning activity.

**Patient Confidentiality**

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| Activity 1:  **Confidentiality**  Take some time to review the information in the following documents before going further:  • Department of Health (2003) NHS Confidentiality: Code of Practice. Available online.  • Department of Health (2010) Confidentiality: NHS Code of Practice Supplementary Guidance: Public Interest Disclosures. Available online.  • The Human Rights Act 1998.  \*Links: <https://www.gov.uk/government/publications/confidentiality-nhs-code-of-practice> <https://www.gov.uk/government/publications/confidentiality-nhs-code-of-practice-supplementary-guidance-public-interest-disclosures> <https://www.equalityhumanrights.com/en/human-rights/human-rights-act> |

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| Activity 2:  **Disclosure**  Familiarise yourself with the disclosure information in the Confidentiality: NHS Code of Practice document together with the Disclosure Models in Annex B.  Now identify policies and procedures within your placement area/organisation for the sharing of, and response to requests for, information. Ensure that you are familiar with these, and note any points which you need to consider as you develop your practice  \* Link: <https://www.gov.uk/government/publications/confidentiality-nhs-code-of-practice> |

**Prompt:**

Confidentiality is linked with sharing and storing information.

Why is confidentiality important?

Legal and professional duty, develop trust and promote professionalism.

When can confidentiality be breached?

Safeguarding concerns for self or others- terrorism threat ie prevent-

Policy linked in practice likely to include; information sharing policy, whistleblowing policy, record keeping policy , freedom of information request policy and requesting medical records/ notes policy

Further to this activity, ask at your placement, of examples of disclosure of information.

**Professional Ethics**

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| Activity 1:  **Informed Consent**  Watch the following video and consider whether or not informed consent has been gained. |

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| Activity 2:  **Applying ethics to prescribing practice**  Consider the dilemma below to help you reflect on potential ethical problems.   1. As a directorate manager in control of the drugs budget you have £X to spend on cancer treatment this year. You have the option of two treatments at different rates of effectiveness and at two different prices. Give reasoned arguments for your choice. 2. Imagine one of the patients was a member of your family and state what your decision would be in that eventuality and why. |

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| Activity 3:  **Considering ethical dilemmas**  Consider the following two questions:   1. Consider yourself in the future working in the role of community nurse prescriber, e.g. a Health visitor. A family who you know struggles with service engagement, have an outbreak of head lice amongst the children. Consider the dilemma of writing a prescription or asking the parent to purchase their medication over the counter. What considerations would influence your decision? 2. What professional advise would you give to a colleague who was considering prescribing holiday vaccinations for themselves and their family? |

**PART 1 – PUBLIC HEALTH**

**Your Public Health Role** [Menu](#_top)

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| Activity 1:  **Determinants of Health**  1. The World Health Organisation (2020) emphasise the impact that certain factors have on ‘determining health’. Use this link to explore the determinants of health.  2. Now consider the various health determinants which may affect the individuals you may meet as a student nurse in the course of your practice.  \*Link: <https://www.who.int/teams/environment-climate-change-and-health/air-quality-and-health/hia-tools-and-methods/using-evidence-within-hia> |

**Prompt:**   
• Relates to holistic, person-centred practice.

• Potential impact of own values and beliefs.

• Links to legislation and policies e.g., Equality Act 2010, safeguarding policy etc.

• Do health determinants differ between age groups - adults, young people and children, and between physical health and mental health issues and/or capacity?

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| Activity 2:  **The Public Health Framework: at a glance**  Access the 2019-2022 framework. Look at each domain and:  1. Identify which indicators relate to your area of practice  2. Identify ways in which a non-medical prescriber could impact upon these  \* Link: <https://www.gov.uk/government/consultations/public-health-outcomes-framework-proposed-changes-2019-to-2020> |

**Prompt:**  
Which indicators are more relevant to your area, how and why?

Pros and cons of non-medical prescriber/ing – established working relationship with patient, aware of wider factors (determinants of health), more immediate treatment, with greater signposting/referral opportunities. Limited number of medications able to prescribe.

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| Activity 3:  **Public Health Target Areas**  1. Which of the target areas that you have identified could be addressed within your nursing practice?  2. Which strategies within nursing practice could enable student and registered nurses to influence local and national targets with specific regard to the non-medical prescribing role? |

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| Activity 4:  **Watch the video following this text.**  Bobby has attended for a health check with his dad. After examining the patient, the registered nurse will need to negotiate a contract with the patient to ensure concordance with any treatment that she proposes. With this in mind, she is aware that there are wider family and lifestyle issues that need to be addressed to help the patient back to good health and well-being.  As a health professional, this nurse is well positioned to identify and develop initiatives that can have a major impact on public health issues and tackle some of the causes of avoidable illness, such as poor diet and lack of exercise.  The patient has a history of constipation and the nurse has arranged to review his diet.  Setting a review date with the patient is important as this enables the patient's condition to be evaluated and progressed. Information leaflets and referral support agencies may also improve patient concordance with the treatment. However, when giving patients information to promote better health, it is important to consider any special requirements they may have in understanding the material. |

**Prompt:**  
Watch the video

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| Activity 5:  **Reflection on Addressing Public Health Issues**  Think about the following potential public health issues and consider if or how you would address them with your mentor:  1. A mother attends clinic with her son who is asthmatic. The mother smells strongly of cigarettes.  2. A diabetic patient attends for his review. His son is on holiday from school, so he has brought him along.  You notice that the patient’s son, who is eating a bag of crisps, appears very overweight.  3. Your patient makes a few comments, in a joking manner, that her husband keeps forgetting things. |

**Prompt:**  
Consider the social determinants of health and how these may impact on a person’s life choices/behaviours.

Consider Prochaska and DiClemente (1983) Stages of Change model – how can the nurse encourage and facilitate changes for better health?

Consider your approach to these patients. Maybe a strength-based approach or motivational interviewing would assist you in retrieving the relevant information in order to provide appropriate person-centred advice and facilitate behaviour change.

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| Activity 6:  **MECC**  Have a look at the resources available at the MECC website and consider how the Non-Medical Prescriber can incorporate MECC into their practice. The MECC pocket handbook is a useful resource.  \*Links: <https://www.makingeverycontactcount.co.uk/> <https://www.makingeverycontactcount.co.uk/media/1040/012-mecc-pocketbook-for-healthcare-staff-june-15.pdf> |

**Prompt:**

Students could practice through role play and/or scenarios.

**Smoking Cessation**

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| Activity 1:  **Resources for Smoking Cessation**  Access smokefree.gov and NHS stop-smoking services to identify the range of resources available to you in supporting patients to stop smoking. |

Prompt:

Students can explore and discuss:

• 10 health benefits/10 myths  
• Stopping smoking in pregnancy  
•Immediate steps someone can take to quit smoking

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| Activity 2:  **Supporting Smoking Cessation**  Watch the video following this text featuring a patient suffering from both schizophrenia and respiratory problems.  Because of Gerry’s current situation, the non-medical prescriber judges that it may not be appropriate to address any health education issues at this point. However, he is aware that he does need to discuss them with his patient at a future date. Consider the questions below, in relation to the patient with schizophrenia and a chest infection.  1. What are the key health education issues for this patient (when well) and what strategies would you use to motivate him and support a lifestyle change?  2. What effects do you think that smoking has on this patient and what benefits would he gain from stopping smoking?  3. What information would the non-medical prescriber need to acquire from a consultation with him in order to prescribe?  4. What supporting advice would you give the patient?  You may find the following documents and websites useful for this exercise:  • Healthy Lives, Healthy People:  • A Tobacco Control Plan for England  • Beyond Smoking Kills  • ASH  • NICE  \*Links: <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/213757/dh_124960.pdf>   <http://www.ash.org.uk/beyondsmokingkills> <http://www.ash.org.uk/> <https://www.nice.org.uk/> |

**PART 1 - PRESCRIBING GOVERNANCE**

**Evidence Based Practice** [Menu](#_top)

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| Activity 1:  **Identifying information sources**  Look for an opportunity during a practice placement to take time to access the sources of information below and try and identify what information is available to the nurses who prescribe.  As an undergraduate student nurse, your University may have subscribed you (free) to an OpenAthens account in order to get access to a wide range of resources. Find out what you have available to you. You can also access via NICE journals and databases here.  Try and find time to explore the resources available via:  • Local staff intranet (to read policy and guidelines within your practice placement)  • University library resources  To help you with specific conditions, start with a basic search at the following links:  • NICE Evidence Search.  • Clinical Knowledge Summaries.  You may find it useful to start to develop a portfolio of resources that you are able to build on throughout your training ready for your entry onto the NMC nursing register. This is something you can carry on and develop throughout your career ready for the time when you too are ready to start prescribing and would support NMC revalidation. This may also serve as a useful aide that could potentially be used by your patients too. It would improve person centre care, patient education and empowerment along with supporting personal NMC revalidation.  When undertaking this activity, consider which sources:  • Give patients the best general information on conditions or treatment.  • Give a nurse or you (in a future role as a prescriber) more specific and reliable clinical information about best practice. |

Whilst on placement try to develop your skills in talking to patients about their condition and treatment. Ask how their condition and treatment affects their daily life.  
Try to practice talking to staff about clinical information and obtain their feedback.

\*Links: <https://www.nice.org.uk/About/What-we-do/Evidence-Services/journals-and-databases> <https://www.evidence.nhs.uk/> <https://cks.nice.org.uk/#?char=A>

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| Activity 2:  **Reviewing the evidence**  Using one of the sources that you identified in activity 1, choose a study that interests you or you feel is appropriate to your current (or past) practice placement area. Use the questions above to review the article and decide if it provides evidence that you could apply to your practice or practice placement area. |

SIGN – the Scottish Intercollegiate Guidelines Network – has a checklist of reviewing evidence.

https://www.sign.ac.uk/what-we-do/methodology/checklists/

Reflect if the article you have chosen meets the SIGN requirements.

**The Importance of Reporting Errors**

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| Activity 1:  **Learning from the past**  Medication errors happen for many reasons and it is important to be aware of past incidents.  Find out more about past incidents of medication error and make a list of their causes - use the links below to help you but please be encouraged to explore more for your own study:  • Learning from patient safety incidents  • List of Error-Prone Abbreviations  • The Report of the Short Life Working Group on reducing medication-related harm  • Pharmaceutical Journal - Peppermint water case |

From your own study, experience, or from the examples, think about why the error occurred. Keep asking why this happened until you have got to root cause.

Links: <https://www.ismp.org/recommendations/error-prone-abbreviations-list> <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/683430/short-life-working-group-report-on-medication-errors.pdf>

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| Activity 2:  **Reporting Errors**  Spend some time reading the following documents to learn more about good systems for error reporting:  • Department of Health (2000) An Organisation with a Memory.  • National Patient Safety Agency (2010) Reducing harm from omitted and delayed medicines in hospital  • Audit Commission (2001) A spoonful of sugar: medicines management in NHS hospitals  • Royal Pharmaceutical Society (2016) Professional standards for the reporting, learning, sharing, taking action and review of incidents  Identify the systems for reporting medication errors within a chosen practice placement. Do they reflect the four features of effective reporting systems (as identified above)? |

Looking at the Royal Pharmaceutical Society’s Professional standards – do you think these standards are reflected in your chosen placement? After an error has been made, how is it reported and what action is done to prevent it happening in future?

\*Links: <https://webarchive.nationalarchives.gov.uk/+tf_/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/Browsable/DH_4098184>   
<https://webarchive.nationalarchives.gov.uk/20171030124325tf_/http://www.nrls.npsa.nhs.uk/resources/?entryid45=66720&p=8> <http://www.eprescribingtoolkit.com/wp-content/uploads/2013/11/nrspoonfulsugar1.pdf> <https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Professional%20standards/Error%20Reporting/rslar-standards-nov-2016.pdf>

**Prescription Pad and Data Security**

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| Activity 1:  Consider the following scenario:  You are on placement in a GP Practice, your mentor, Staff Nurse Evans, is an experienced Practice Nurse. A patient's son, Mr J, makes an appointment to meet with Nurse Evans to discuss his 65 year old mother, Silvia, who is a retired architect. Silvia is an intelligent, independent and capable lady who Nurse Evans has been treating for hypertension. When Mr J arrives, he tells you, that during recent regular family visits, he has noticed that Silvia is not caring for herself and does not seem to be eating. Over the past few weeks, she has flooded the bathroom, failed to keep social appointments and mislaid keys. You note his concerns in the patient’s record.  Mr J states that he is telling you this in confidence because is concerned about his mother’s physical and mental state. In addition, because of the delicacy of the information, he does not want his mother to know that he has passed on his observations to you.  1. How should Nurse Evans respond to Mr J?  2. Consider that shortly afterwards Silvia applies to access her health records. How should Nurse Evans respond to the patient? |

Mr J should be advised to discuss his concerns with his mum, Silvia, to gain consent to ask for help on her behalf. If she refuses and there are still concerns, then the local safeguarding pathway should be followed. Access to a patient’s own notes should be followed along with local policies.

**PART 2** [Back to Menu](#_heading=h.gjdgxs)

**PART 2 – PHARMACOLOGY**

**Pharmacodynamics**

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| Activity 1:  **Agonists and Antagonists.**  Review the Material contained in the following two University of Nottingham Link(s):  • Overview of Receptor interaction theory  • Lock and key hypothesis  \*Links: <https://www.nottingham.ac.uk/nursing/sonet/rlos/bioproc/drug-receptor/index.html> <https://www.nottingham.ac.uk/nursing/sonet/rlos/bioproc/lock_and_key/index.html> |

**Pharmacokinetics**

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| Activity 1:  **Drug-drug interactions.**  Review the table below and consider the following drug-drug interactions:  1. An individual is prescribed warfarin because of a risk of a diagnosis of atrial fibrillation but is also prescribed rifampicin for newly diagnosed tuberculosis  2. What is the risk for an individual who smokes heavily who is prescribed clozapine for psychosis?  3. Why might an individual with alcohol dependency be prescribed disulfiram? |

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| Activity 2:  **Liver Disease and Kidney Impairment.**  Take a moment to visit this resource on ‘The Liver and Drug Metabolism’ from Nottingham University, then access the British National Formulary and the Electronic Medicines Compendium online.  In relation to the drugs on your P-List, note any special warnings, precautions, close adjustment and monitoring needs in relation to hepatic and renal impairment.  \*Links: <https://www.nottingham.ac.uk/nursing/sonet/rlos/bioproc/liverdrug/index.html> <https://bnf.nice.org.uk/> <https://www.medicines.org.uk/emc/> |

**Adverse Drug Reactions**

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| Activity 1:  **Adverse Drug Reactions**  Think about clinical experience or personal experience and consider the following:  • Have you seen an individual present with adverse drug reaction?  • What were the signs and symptoms displayed or described by the person experiencing the drug reaction?  • What actions were taken by health professionals following the adverse drug reaction?  • What steps should be taken following drug reactions (consider assessment of the patient, current and future health of the patient and documentation)? |

Student should consider any possible drug reactions they have seen in their clinical practice.

Symptoms could be mild and include rashes, vomiting, headaches (ranging in intensity), itchiness, nausea, diarrhoea, dizziness to more severe symptoms such as blistering of the skin, gastro-intestinal bleeding, difficulty breathing and anaphylaxis.

Actions taken by professionals could include ensuring that the patient safety in the first instance.

Consider positioning of the patient, possible administration of oxygen if required, suctioning equipment maybe required, monitoring of vital signs such as pulse, respiratory rate, blood pressure, temperature, monitor conscious levels if needed and GCS depending on nature of reaction.

Inform medical staff of drug reaction and work together to ensure the safety and well-being of the patient.

Manage any side effects and symptoms.

Following a drug reaction: it should be documented in their health records to prevent future administration.

Patient should be educated and informed of the concerns around future administration of the medication.

Yellow card scheme should be completed and the MHRA informed of the drug reaction as part of pharmacovigilance.

**PART 2 - PRESCRIBING SAFELY, APPROPRIATELY & COST EFFECTIVELY**

**Preparing to Study the Principles of Prescribing Practice**

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| Activity 1:  Access your University's Numeracy resources and find additional numeracy quizzes. |

**Safe Drug Calculation**

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| Activity 1:  Calculation principles form the basis for safe and accurate drug calculations and require ongoing development. To do this your University will be providing resources alongside this one to enable you to do so.  Find the numeracy resources your University has access to e.g. SNAP Assessment and Education. |

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| Activity 2:  Access your University's numeracy resources and find additional numeracy quizzes. |

SN@P Assessment & Education offers support within the Preparing to Prescribe resource for clinical numeracy competency testing and skill building.

If you would like to arrange for a group of your students to have a free trial licence, please email [kieran@sn@p-ae.com](about:blank).

For existing licence holders, the links below provide further information for academic staff with regards to registering students for an account with SN@P:

Our Knowledge Base: <https://snap-ae.com/help/knowledge-base.php>  
User Support – please raise a support ticket at <https://snap-ae.com/create-support-ticket.php>

Access is provided by the university providing a spreadsheet including the names and university email addresses of students.

Information that could be provided to students on your library resources pages for students:

Your programme of study may provide you with free access to Sn@p Assessment and Education – a resource for practicing and developing your numeracy skills. Please ask your tutor or Programme Lead who will be able to arrange for your access. Alternatively limited free resources to support your numeracy development are available at [www.snap-ae.com](http://www.snap-ae.com) .

Login link: [www.snap-ae.com](http://www.snap-ae.com)

Password reset link: <https://snap-ae.com/forgot-password.php>

Request help from our support team: <https://snap-ae.com/create-support-ticket.php>

Set up an account: <https://snap-ae.com/registration.php>

Graphical user interface

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**PART 2 - CONSULTATION, COMMUNICATION & CLINICAL DECISION MAKING**

**Effective Communication** [Menu](#_top)

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| Activity 1:  Reflect on an episode of care from your practice experiences and consider how the elements of the nursing process above were applied.  Can you think of elements which could have been improved? |

**Suggested content:**

• Identifies an appropriate case scenario from practice.

• Is able to consider the nursing process with application to their case scenario and identify if any parts of the nursing process were not applied

• Identifies areas for development and how these will contribute to their own professional development

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| Activity 2:  **Approaches to consultation and assessment**  Think about a recent consultation (or choose to observe a consultation) and answer the following questions:  1. What approach (patient-centred or health-practitioner centred) was taken?  2. What behaviours of the health-practitioner were evident which supported this approach?  3. What was the response of the patient?  4. How effective do you perceive the consultation to have been? |

**Suggested content:**

• Considers a person-centred approach and if this was employed. Evaluates the consultation and critically considers points where it may have been practitioner-centred and demonstrates an ability to differentiate

• Explores the behaviours of the health professional considering their use of communication strategies and how these contributed to their identification of the approach taken

• Able to objectively consider the responses of the patient and think about how the approach impacted upon the outcomes

• Identifies the effectiveness of the approach and is able to discuss and support their thinking using examples.

**Assessment and Examination**

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| Activity 2:  After investigating the core examination skills you will have probably established which of the core skills you may require in practice.  Consider the more specialist examination skills you may need for your own role in practice, and list them in your portfolio, giving a rationale for each examination.  Critically evaluate if the rationale for developing the skill justifies you as the most appropriate professional to undertake the examination.  You may find the following web resources useful:  <http://www.skillstat.com/tools/ecg-simulator> - This is an excellent site for viewing different ECG readings and finding out what they mean. It also includes an interactive game. <http://www.wilkes.med.ucla.edu/intro.html> <http://meded.ucsd.edu/clinicalimg/> <http://www.wilkes.med.ucla.edu/> |

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| **Activity 3: Ensuring a thorough assessment**  There may be situations within your future Non-Medical Prescribing role, when the patient requires a core monitoring procedure that you do not have the ability, time or equipment to perform.  Reflect upon your intended area of practice and list possible examples of these situations. For each possibility, briefly outline how you would gain access to such services or support. |

**Concordance, Adherence and Negotiating a Contract**

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| Activity 1:  **Non-Adherence and Your Formulary**  Consider some of the conditions you have observed prescribing practice and the drugs that were used to treat each condition. Write some notes for yourself to explain the Pharmacokinetics and pharmacodynamics of each treatment and the possible outcomes of common patient non-adherence. |

**History Taking, Clinical Decision Making and Diagnosis**

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| Activity 1:  **Interviewing and history taking**  Use this link to search for 'history taking and interviewing' and familiarise yourself with the principles. \*Link: <http://www.gpnotebook.co.uk/> |

• Is able to list the principles and consider these in relation to their field of practice

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| Activity 2:  **Symptom analysis**  Watch the two videos following this text (Hidden Agenda Headache and Child of our Time). Note how the symptoms were explored by mapping the questions asked, and information gained, against the OPQRST – ASPN mnemonic. Make particular note of any pertinent negatives. |

• Critically considers how the symptoms were explored, communication strategies and the use of OPQRST-ASPN

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| Activity 3:  **Pertinent Negatives**  Consider the range of conditions you have observed during placement and make a note of the pertinent negatives for each condition that would lead to a differential diagnosis. |

•Can identify a range of conditions from practice experience and is able to identify other conditions with a similar presentation and based upon their experience consider how these were excluded e.g., blood tests.

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| Activity 4:  **Herb-drug interactions**  Access ‘The Pharmaceutical Journal: Herbal Therapeutics, 10 Herbal Interactions’ via the link and then searching for 10 Herbal Interactions (Barnes J et al)  \*Link: <https://www.pharmaceutical-journal.com/learning/learning-article/herbal-therapeutics-10-herbal-interactions/10982062.article> \*  Then answer the following questions:  1. What is the likelihood of your patients using herbal medicinal products?  2. What advice would you give a young female patient who reports using St John's Wort?  3. Would it be appropriate to report a suspected, but unproven, interaction between an herbal and prescription only medicine? |

If the above link resource is unavailable, please use and replace it with these URLs: <https://bnf.nice.org.uk/> and <https://reference.medscape.com/drug-interactionchecker>

Change to via the BNF link provided identify 10 drug interactions with St John’s wort. Using the second link put in some names of OTC drugs you are familiar with and herbal remedies   
**Suggested content:**

• Recognises that patients regularly use herbal remedies alongside prescribed drugs and the importance of fully informing of the risks

• Considers reasons for using St. John’s wort and symptoms for example low mood. Would advise seeking support from GP and assessment of mental health.

• Understands that a suspected interaction should be reported to the MHRA using the yellow card scheme with details

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| Activity 5:  **Working Diagnosis**  Watch the video following this text (A Child of our Time).  1. What were the differential diagnoses?  2. What was the working diagnosis?  3. How was this reached? |

**Suggested content**:

• Is able to discuss an understanding of differential diagnosis and how this was excluded to achieve a working diagnosis.

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| Activity 6:  **Identifying clinical decision making theory**  Reflect upon some recent consultations and consider: \* Which of the clinical decision making theories best match the approach you used to reach a diagnosis? \*What was your rationale for taking this approach? |

**PART 2 – PRESCRIBING GOVERNANCE**

**Clinical Governance** [Menu](#_top)

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| Activity 1:  **Clinical Governance Guidance**  Access the Gov.UK site and undertake a search using the term ‘quality governance in the NHS’, to help you to become familiar with the range of related guidance.  Is any of this a surprise to you?  Is this what you expected to read?  Make notes on your findings. |

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| Activity 2:  **Appropriate Prescribing**  Think about a practice placement environment you have experienced:  What sort of drugs/items were prescribed regularly, appropriate to that clinical area?  Was there a local formulary?  Try and observe a prescribing consultation between a prescriber and patient/client:  If a prescription was issued - was it on the localities formulary?  Apply one of the mnemonics (STEP or EASE) to provide a rationale why the drug was appropriate for that patient  Can you identify an alternative drug/product which could have been prescribed and apply one of the mnemonics. Consider if the information given provides a rationale for this not being prescribed as the first drug/product of choice. Think about everything discussed above. (NB: you don't have to think of a drug, you may wish to consider a product that was prescribed eg, a pressure relieving product, a continence device, dietary/food items etc relevant to your placement discipline). |

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| Activity 3:  **Using ePACT Data**  Take some time to browse the ePACT information on the NHS Business Services Authority website.  When on placement, it may be useful to arrange to meet with the organisation’s Non-Medical Prescribing Lead to explore how ePACT data is used within the organisation.  \*Link: <https://www.nhsbsa.nhs.uk/epact2> |

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| Activity 4:  **Yellow Card Reporting**  Adverse Drug Reactions are reported by health professionals using the Yellow Card scheme. It was introduced in 1964 following the thalidomide tragedy. The scheme is used by the Medicines and Healthcare products Regulatory Agency (MHRA) to collect information about drugs.  Use this link to familiarise yourself with the process for making a report to the Yellow Card Scheme. <https://yellowcard.mhra.gov.uk/> |

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| Activity 5:  **Deviation from guidelines**  When in your practice placement area, arrange to speak to a nurse prescriber or other prescribing healthcare professional. Ask them about a situation where a patient’s treatment needed to deviate from the organisations guidelines. Reflect on the scenario you have discussed and use the following questions to discuss it in your portfolio - make sure you do not use any patient or staff identifiable material!:  What was the reason for deviation from the guidelines?  How exactly did this treatment deviate from guidelines?  Could an alternative treatment have been considered?  What information was/could have been provided to the patient to enable an informed choice to be made?  Could anything else have been done to ensure and demonstrate duty of care? |

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| Activity 6:  **Auditing prescribing practice**  Make a note of the following questions in your portfolio. This should help you once you have qualified and need to conduct your own audit exercise. Remember that it is not always necessary to audit the prescribing of the medicine itself, it could be an audit of the information provided alongside the medication or an audit to see if the follow-up and review is in line with national guidelines and standards.  What guideline(s) are used to inform best practice?  What specific aspect(s) of the guidance are you going to audit?  How will you collect the data?  What resources might be needed?  How will you disseminate your findings?  Who will need to know the audit findings? |

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| Activity 7:  **Identifying Health priorities**  Look at the following National Health Service webpages and identify the health priorities and associated targets for the area of the UK in which you live:  NHS England: <https://www.england.nhs.uk/>  NHS Wales: <http://www.wales.nhs.uk/>  NHS Scotland: <http://www.healthscotland.scot/>  Department of Health Northern Ireland: <https://www.health-ni.gov.uk/>  Access your local health and wellbeing board’s webpages to identify their key health objectives. You may find it useful to search for your local Joint Strategic Needs Assessment (JSNA) and look at those priorities.  Conduct an internet search for any Joint Strategic Needs Assessment (JSNA), or more interestingly identify the one most relevant to where you live. In the JSNA, identify the health priorities /objectives applicable to that locality and reflect on how these may be positively impacted through Non Medical Prescribing practice, eg, if smoking is an issue, would a smoking cessation service be of benefit? How would a nurse prescriber be of use to tackle smoking?  Identify any issues that might hinder a nurse prescribers ability to impact on national and local health targets. |

**PART 2 – PUBLIC HEALTH**

**Vaccination** [Menu](#_top)

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| Activity 1:  **Take a look at the Vaccination timeline here.**  Scheduled vaccination of children and specific vaccination of anyone travelling abroad are both essential in the control of infectious disease. Vaccination campaigns in response to outbreaks of infectious disease support public health strategy.  Reliance by some parents on herd immunity rather than vaccination does not provide reliable protection (Cowley, 2008). Therefore, the registered nurse is in an ideal position to promote the uptake of vaccination and assist in the eventual eradication of more infectious diseases. |

This shows the student the history of vaccine development and introduction of routine vaccine programmes in the UK.

\*Link: <https://www.gov.uk/government/publications/vaccination-timeline>

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| Activity 2:  **Herd Immunity**  Watch this short video on herd immunity by The Royal College of Pathologists (2020). |

Very relevant to the current coronavirus pandemic and the search for a vaccine – students could explore the R rate and how this decreased/increased throughout the pandemic.

Students to explore and debate Herd Immunity and Covid19, considering how this would be achieved and what the human cost might be.

\*Link (Video) - <https://www.youtube.com/watch?v=tC47JjakPSA>

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| Activity 3  **Introduction to all Vaccination Schedules**  Refer to the sources at this link. The documentation found there (including the ‘Green Book’) are an essential reference to any professional administering vaccinations and are updated regularly.  1. Identify the vaccines the registered nurse is likely administer  2. Identify the childhood vaccination schedule for the UK |

Which vaccines will you use in your practice, why and how will this benefit the health of the patient and society?

\*Link: <https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book>

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| Activity 4:  **Vaccination Uptake**  Identify the issues and influences within the registered nurses' practice which may affect:  1. Promotion & administration of vaccinations  2. Uptake of vaccination  You may find these resources helpful for completing the above activities:  • NHS Choices: <http://www.nhs.uk/Planners/vaccinations/Pages/aboutvaccinationhub.aspx> |

What are these issues and how can they be overcome?

Can social media play a part in promotion and uptake of vaccines or/and can it prevent uptake in any way?

Can the student identify a case in point – e.g. MMR

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| Activity 5:  **Vaccination Side Effects and Contraindications**  Use the link to the Green Book to find the answers to the following questions:  1. What are the mild side-effects from childhood immunisations which you should warn parents about?  2. What are classed as severe adverse reactions to vaccination? \*Link: <https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book> |

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| Activity 6:  **Vaccine Storage**  Use the link to the Green Book to find the answers to the following questions:  1. How should vaccines be stored?  2. At what temperature should vaccines be stored?  3. What should you do in the event of the fridge being accidentally switched off & the temperature recording 1°C?  4. What measures can be taken to ensure vaccines are not wasted?  5. What is the cold chain?  \*Link: <https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book> |

**Specific Public Health Issues**

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| Activity 1:  **Antimicrobial and Antibiotic resistance**  Use the search facility at NICE Evidence at to find out more about antimicrobial and antibiotic-resistance in the conditions that you are likely to treat.  Consider the rise of MRSA and other antibiotic resistant conditions in relation to the patients you see in your placement.  Consider patient attitudes towards antibiotics as observed in your placement areas. How can patient demands for antibiotics be managed?  **\***Link: <https://www.evidence.nhs.uk/> |

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| Activity 2:  **Watch this short TED Talk and identify any emerging themes**  What do we do when antibiotics don't work anymore?  \*Link: <https://www.ted.com/talks/maryn_mckenna_what_do_we_do_when_antibiotics_don_t_work_any_more?language=en> |

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| Activity 3:  **Antimicrobial Stewardship**  Access the following resources to gain a clearer understanding of antimicrobial stewardship and to identify the resources available to support appropriate prescribing of antimicrobials:  NICE (2015) Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use, NICE guideline [NG15].  NICE (2017) Antimicrobial stewardship: changing risk-related behaviours in the general population, NICE guideline [NG63].  NICE (2018) NICEimpact-antimicrobial-resistance  Public Health England (2013) Antimicrobial prescribing and stewardship competencies.  Public Health England’s (2017) document Antimicrobial Resistance Resource Handbook  •Links: <https://www.nice.org.uk/guidance/ng15> <https://www.nice.org.uk/guidance/ng63> <https://www.nice.org.uk/Media/Default/About/what-we-do/Into-practice/measuring-uptake/NICEimpact-antimicrobial-resistance.pdf> <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/253094/ARHAIprescrcompetencies__2_.pdf> <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/605967/PHE_AMR_resource_handbook.pdf> |

**PART 3** [Back to Menu](#_heading=h.gjdgxs)

**PART 3 - PHARMACOLOGY**

**Pharmacology & Individual Variability**

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| Activity 1:  **Interaction by absorption**  There are a number of factors which may influence the rate and extent of absorption of orally administered drugs.  Consider how the following may affect drug absorption and give examples:  • presence of food in the stomach  • drug-drug interactions in the stomach  • the pH of the stomach  • delayed gastric emptying |

**Suggested answers:**

1) Presence of food in the stomach generally delays absorption of drugs. Alternatively, if an ACE inhibitor e.g., ramipril for hypertension is taken on an empty stomach then absorption is increased. The cholesterol lowering drug, lovastatin should be taken with food to increase absorption. Ketoconazole should be taken with food as it requires an acid medium for absorption (relies on post-prandial acid environment).

2) Drug-drug interactions

Examples include:

Tetracycline should not be administered with milk products as it causes a precipitate and reduces drug absorption. Ciprofloxacin (anti-microbial) binds to calcium and magnesium which are found in antacids and therefore extent of absorption is reduced

3) Gastric acidity

Gastric pH varies with age and with the administration of antacids and both of these factors can alter the rate of drug absorption. Drug solubility and absorption are influenced by the pH of the stomach and duodenum. An acidic environment will increase the absorption of acidic drugs e.g, phenytoin. Some drugs are degraded by the pH of the stomach. A range of examples could be given

4) Delayed gastric emptying will result in delayed drug absorption in the intestine.

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| Activity 2:  **Interaction by drug metabolism and drug excretion**  Consider the factors which may affect the rate at which a drug is metabolised. You will need to consider the role of the liver as the primary organ for drug metabolism.  The kidneys play a major role in the elimination or excretion of drugs.  • Explain the terms: renal tubular secretion and glomerular filtration.  Answer the following questions in relation to renal drug excretion:  • Why might the administration of a non-steroidal inflammatory drug e.g., ibuprofen be contradicted with lithium?  • Consider the possible interaction with probenecid with the penicillin group of antimicrobials. |

Factors that may affect the rate a drug is metabolised:

**Liver -** Decreased liver function, as the liver is the main organ involved in drug metabolism. So any conditions that effect liver function may impede liver function such as liver cirrhosis or congenital conditions that effect the liver

**Age:** - The liver in a neonate and young child is immature and cannot metabolise drugs as effectively and therefore increases the risk of toxicity. Also, the liver enzyme activity is very much reduced in children and this can lead to prolonged elimination of the drug eg diazepam and phenytoin.

The elderly also can have reduced function of organ systems such as the liver and kidneys and also altered metabolising enzyme systems.

**Genetic make up:** Some individuals metabolise drugs more slowly than others. This may increase their risk of having higher level of drug in their body and may lead to toxicity. Others may metabolise drugs very quickly and therefore are less likely to experience their therapeutic effect.

**Kidneys:**

**Glomerular filtration:** This is the first step in the formation of urine. It is the process in which fluid, ions, glucose and waste products are removed from the glomerular capillaries. There is no energy requirement at this stage of the filtration process and is achieved by passive diffusion. Glomerular filtration rate (GFR) is the volume of glomerular filtrate formed per minute by the kidneys.

There is second step: tubular reabsorption where all the nutrients are re-absorbed into the renal tubule by active or passive transport.

Renal tubular secretion: This is the final step where solutes and waste are secreted into the collected ducts ready to be excreted from the body via the bladder.

If the glomerular filtration rate is reduced or the renal function is poor, then drugs cannot be excreted efficiently and there is an increased risk of drug toxicity.

Question 1: Non-steroidal inflammatory drugs such as ibuprofen can interfere with the pharmacokinetics of lithium. NSAIDs reduce the renal excretion of lithium via their action on renal prostaglandins, resulting in increased plasma lithium levels.

Question 2: Probenecid is sometimes used in conjunction with the penicillin group of antimicrobials (e.g., penicillin, ampicillin, nafcillin) to increase antibiotic blood levels. This increase makes the antibiotic work better at treating certain infections. Probenecid works by decreasing the kidneys' ability to remove the antibiotic from the body thus increasing their plasma half-life.

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| Activity 3:  **Age related Changes**  The table above summarised the extent of the age-related considerations.  Identify one aspect of age-related changes within each of the stages of pharmacokinetics and research how age affects this e.g.  • What are the differences in muscle mass and blood flow in neonates, through the child and older adults?  •What changes occur in the liver age which will affect the extent of first pass metabolism and the bioavailability of an orally administered drug?  •How will age-related changes in the kidneys affect the elimination of the drug? |

Neo nates have decreased muscle mass and decreased muscle blood flow.  
A premature infant has only about 18% of their weight in the form of muscle, a term infant about 30%, a 6 month old about 40% and then most children a year of age or older, approximately 50% of their body weight is in the form of muscle mass. This lack of muscle mass and blood flow leads to unpredictability of absorption and distribution and of IM administration is one of the reasons why intramuscular injections are the least preferred route of administration in children.

Decreases in liver mass and liver perfusion reduce the hepatic first-pass effect and therefore the bioavailability of some drugs can be increased in the elderly.

Increasing age can lead to decreases in glomerular filtration rate (GFR) and renal blood flow (RBF), this decreases the elimination of a drug and increased risk of toxicity.

Also, the amount of kidney tissue decreases, the number of nephrons decreases and blood vessels supplying the kidneys can become hardened.  
This causes the kidneys to filter blood more slowly and again reduces the elimination of drugs from the body and increases the risk of toxicity.

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| Activity 4:  **Prescribing for Older People**  Refer to the resources below when answering the following questions:  1. Identify the pharmacological factors that can contribute to the likelihood of falls in the elderly?  It is important to recognise that biological age is not synonymous with chronological age, so changes in physiological functioning can impact on pharmacodynamics and pharmacokinetics. Changes to hepatic and renal function, drug distribution because of the ratio of body fat / body water, protein binding fractions can affect the absorption, distribution, metabolism and excretion of drugs which in turn can influence drug levels. Drug toxicity can result in side effects and adverse effects which may affect cognition, mobility and functioning, increasing the risk of falls. Alterations to cell functioning may affect the pharmacodynamics of drugs e.g. the older person is more sensitive to the sedating effects of benzodiazepines, and the anti-depressant effects of drugs. Changes to baroreceptor function which controls blood pressure can result in postural hypotension, which can be aggravated by drugs which affect the central nervous system. Anticholinergic drugs e.g., hyoscine, can result in drowsiness and confusion  2. Identify the side effects of non-steroidal anti-inflammatory drugs (NSAIDs) in the elderly?  Side effects can result in gastric irritation with an increased risk of gastric ulceration and bleeding. Should be prescribe with caution in the elderly, particularly with ischaemic heart disease, peripheral arterial disease, uncontrolled hypertension.  3. Identify the behaviours that can lead to inappropriate prescribing for the elderly?  Examples include: poor cognition and understanding of drug regimens, polypharmacy may cause confusion.  4. Think about drugs which you have seen prescribed for the older client and explore whether there needs to be alterations in the dosage, specific monitoring and special considerations?  Students could focus on cardiovascular drugs e.g. anti-hypertensive agents, respiratory drugs, anti-coagulant therapy all of which are commonly prescribed in the older individual |

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| Activity 6:  **Paediatric Dosage.**  Consider the scenario below and answer the questions which follow:  Lucy is a two-month-old baby and requires cannulation, it has been requested by the doctor that she has a topical anaesthetic applied - Lidocaine with Prilocaine (e.g., EMLA) Cream.  • What is the recommended dose for a 2-month-old?  • What is the difference between the dose for a 1 - 2-month-old, a 3 - 11-month-old, and a 17-Year-old?  • Considering the information above, why do you think these differences exist? |

The recommended dose for lidocaine with prilocaine (EMLA) for a 2-month-old is 1g for maximum 1 hour before procedure, to be applied under occlusive dressing,

The dose for 3- 11 month is 2g for maximum 1 hour before procedure, to be applied under occlusive dressing,

The dose for a 1–17-year-old is a thick layer under an occlusive dressing, applied 1–5 hours before procedure.

The differences between the smaller doses and shorter administration time is that the drug is being applied to a relatively larger surface area in a 2 month old than an older child due to the increase in surface area to body mass in the younger child. More rug is absorbed systematically if applied to a larger surface area. Also, the stratum corneum of the skin is thinner in a younger child too and therefore more readily absorbed.

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| Activity 7:  You might wish to reflect on your practice experiences and think about individuals you have supported where disease has impacted on prescribing decisions for example:  • How might peripheral oedema affect the absorption of a drug administered subcutaneously?  Suggested answer  The increase in interstitial fluid seen in peripheral oedema will reduce the absorption of transdermal applications of fentanyl patches and drugs administered subcutaneously. The extent of absorption of frusemide is decreased in the presence of gut oedema  • What effect will gastrointestinal disease e.g. inflammatory bowel disease affect the absorption of the drug in the intestines?  The loss of integrity of the intestinal wall due to inflammation is likely to increase the rate and extent of absorption, although if there has been surgical resection of the small intestine, then the surface area of the gut is reduced and therefore absorptive surface. Decreased gastric emptying is seen in intestinal obstruction, pain and hypovolaemic shock. Increased gastric emptying occurs with coeliac disease and duodenal ulcer. |

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| Activity 9:  Listed in the table below are some examples of diseases and their impact on organ function. Identify a number of the examples below and consider their impact on the pharmacokinetics of the drug: |

**Suggested answers**

Student should consider at least 2 examples cited in the table e.g. hepatic disease or renal disease and explain how pharmacokinetic processes may be affected e.g. in hepatic disease, the rate and extent of drug metabolism will be affected as will the production of plasma proteins e.g. albumin will affect plasma protein binding. The extent to which a drug undergoes first pass metabolism will be affected and may result in an increase in a drug’s bioavailability, risking drug toxicity.  
Total blood flow to the liver is reduced with advancing age which will affect the rate of drug metabolism.  
Drugs which may require dose adjustment include opiates e.g. morphine sulphate, anti-depressants e.g. amitriptyline.   
If liver function is compromised by disease then the administration of pro-drugs (which require metabolism to be activated) will not be therapeutic e.g. ACE inhibitor, enalapril.

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| Activity 10:  Food-Drug Interactions  •Search for examples of anti-depressant group of drugs called the 'monoamine oxidase inhibitors'. Look at how they work to relieve the symptoms of depression and explore why individuals are strongly advised not to eat foods containing tyramine such as marmite, fermented cheese, soy sauce.  •Explore how food in the stomach affects the rate of absorption  •Why does grapefruit juice affect the metabolism of the anti-hypersensitive drug, nifedipine?  •What happens when you take tetracyclines with milk?  Food Drug Interactions  Bioavailability affected by presence of food and rate of drug absorption  Grapefruit juice (inhibition of CYP450 enzymes by naringenin) e.g. nifedipine  Interaction of monoamine oxidase inhibitors with tyramine - containing foods - hypersensitive crisis  Interactions with antacids  Influence of fat on drug absorption  Drug interactions involving alcohol |

Monoamine oxidase inhibitors (MAOIs) block monoamine oxidase, which is an enzyme that breaks down excess tyramine in the body.  
Blocking this enzyme helps relieve depression. Tyramine is an amino acid that helps regulate blood pressure. It occurs naturally in the body, and it ia also found in certain foods such as marmite, certain cheeses and soy sauce.

If you take an MAOI and you eat high-tyramine foods, tyramine can quickly increase in blood serum levels causing an increase in blood pressure which can be life threatening and require emergency treatment.

Food in the stomach can slow down gastric emptying and this can delay drug absorption which usually occurs in the small intestine.

Also, meal composition can have a further effect the higher the fat content of the meal the slower the gastric emptying.

Grapefruit juice can block the action of CYP3A4, this enzyme is involved in the metabolism of calcium channel blockers such as nifedipine.  
Therefore, nifedipine is not metabolised effectively and can lead to increased risks of toxicity.

Tetracyclines are antibiotics and they may bind to the calcium in milk, forming an insoluble substance in the stomach and upper small intestine that the body is unable to absorb.

Activity 11:

**Pregnancy and Breast feeding**

It is suggested that you study the sections referring to prescribing in Pregnancy and Breastfeeding of the [BNF](https://bnf.nice.org.uk/) for the following and then answer the questions which follow.

An example of a change in the use of a drug in pregnancy is sodium valpoate (Epilim) prescribed for epilepsy. In March 2018, the Medicines and Healthcare Products Regulatory Agency published [revised guidance](https://www.gov.uk/government/news/new-measures-to-avoid-valproate-exposure-in-pregnancy).

Which of the following drugs are considered safe to prescribe in pregnancy? If not, in which trimester should these drugs be avoided?

• Diclofenac

• Amoxycillin

• Paracetamol

• Tetracycline

Which of the following drugs are considered safe to prescribe to a breast-feeding mother?

• Aspirin

• Ibuprofen

• Tetracycline.

**Suggested answers**

**Pregnancy:**

Diclofenac: Avoid unless the potential benefit outweighs the risk. Avoid during the third trimester (risk of closure of fetal ductus arteriosus in utero and possibly persistent pulmonary hypertension of the newborn); onset of labour may be delayed and duration may be increased.

Amoxycillin: No known concerns

Paracetamol: No known concerns

Tetracycline: Should **not** be given to pregnant women; effects on skeletal development have been documented in the first trimester in animal studies. Administration during the second or third trimester may cause discoloration of the child’s teeth, and maternal hepatotoxicity has been reported with large parenteral doses.

**Breast feeding:**

Aspirin – avoid use when breast feeding due to the risk of Reye’s syndrome in the infant. It can impair platelet function and produce hypoprothrombinaemia in infants who may be low in Vitamin K.

Diclofenac - use with caution during breast-feeding. The amount is too small to be harmful but some manufacturers still advise to avoid.

Tetracycline: Should **not** be given to women who are breast-feeding (although absorption and therefore discoloration of teeth in the infant is probably usually prevented by chelation with calcium in milk.

**Adverse Drug Reactions** [Menu](#_top)

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| Activity 1:  **Adverse Drug Reactions - Paracetamol**  Watch the video excerpt above and listen to the commentary, then go on to answer the following questions:  1. What are the cautions and contraindications for paracetamol?  2. What are the adverse effects of paracetamol?  3. What information and advice should you give to a person prescribed/taking paracetamol?  Answers can be found on the following excellent web page: Analgesia mild to moderate pain - paracetamol information for the prescriber NICE 2019  You may wish to do the same activity for other analgesia available on the same web  \*Link: <https://cks.nice.org.uk/topics/analgesia-mild-to-moderate-pain/#!scenario:1> |

**Suggested answers:**

1) Cautions and contraindication for paracetamol: check when paracetamol was last administered and maximum adult dose 4g in 24 hours.  
Dose reduction required in those less than 50kg body weight. Administer cautiously in hepatic disease, chronic dehydration, malnutrition

2) Adverse effects – hepatic failure seen in overdose. Rare side effects include acute generalised exanthematous pustulosis, malaise, skin reaction, Stevens-Johnson syndrome

3) Advice –guidance regarding the maximum dose in 24hours and be cautious when taking compound medicines which contain paracetamol

**Activity 3:**

Type A and B ADRs examined further.

Using a resource of your choice, read about and make notes on Type A and B Adverse Drug Reactions. You may find the resources below useful.

•. Barber, P.and Robertson, D. (2015) Essentials of Pharmacology for Nurses. 3rd edn. McGraw-Hill (Check your institution library for the availability of this resource)

•. British National Formulary: [https://bnf.nice.org.uk](https://bnf.nice.org.uk/)

•. NICE. (2017). Adverse Drug Reactions: <https://cks.nice.org.uk/adverse-drug-reactions#!background>

Here are some examples of ADRs:

Examples of Type A ADRs:

• Atenolol causes bronchoconstriction in asthma because it is a beta-blocker so it acts to antagonise the bronchial relaxant effects of beta-adrenoceptors in the lungs

• Antibiotics cause diarrhoea and thrush by disrupting normal intestinal mucosal flora

• Immunosuppressants cause susceptibility to infection by depressing the immune system.

Examples of Type B ADRs:

• Anaphylaxis with penicillin is comparatively rare and unpredictable

•. Hepatoxicity caused by troglitazone resulted in this drug being withdrawn.

**Drug Interactions**

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| Activity 1:  **Drug Interactions.**  Think about a common drug that is used within your within your chosen field of nursing. Consider the mechanism of action and, referring to Appendix 1 of the British National Formulary or using the BNF/BNFc app note any clinically significant drug interactions. An example is shown here:  Erythromycin is a macrolide antibiotic. It is a potent enzyme inhibitor that reduces the metabolism of many drugs. This pharmacokinetic interaction can result in the increased availability of the drug. Clinically significant drug interactions with macrolide antibiotics include:  Anti-arrhythmic drugs: e.g. amiodarone, disopyramide  Anticoagulant drugs: e.g. warfarin, nicoumalone  Antiepileptic drugs: e.g. carabamazepine, phenytoin, valproate  Antihistamines: e.g. terfenadine  Antipsychotics: e.g. amisulphiride, clozapine, quetiapine  Lipid Regulating drugs: e.g. atorvastatin, simvastatin, rosuvastatin, theophylline |

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| Activity 2:  **Drug Interactions.**  Use the BNF and https://www.medicines.org.uk to complete this table: |

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| **A** | **B** | **Interaction Mechanism** | **Consequence to Patient** |
| Naproxen | Lithium | Naproxen reduces the renal clearance of lithium resulting in potential toxicity | Risk of lithium toxicity. |
| Amiodarone | Grapefruit Juice | Grapefruit juice is a potent inhibitor of the CYP450 enzyme system (CYP3A) which is involved in the metabolism of amiodarone. This results in reduced metabolism of amiodarone and increased drug levels | Risk of amiodarone toxicity which results in severe cardiac arrhythmias |
| Omeprazole | Clopidogrel | Clopidogrel is metabolised to its active metabolite by the CYP450 enzyme, CYP2C19.  Omeprazole inhibits the action of CYP2C19, with the result that it reduces Clopidogrel’s ability to inhibit platelet aggregation ( and prevent thromobotic events which contribute to stroke and myocardial infarction) | The therapeutic effect of Clopidogrel is reduced and the patient remains at risk of thrombotic events |
| Amoxicillin | Methotrexate | Amoxicillin increases the serum levels of Methotrexate by inhibiting the tubular secretion of Methotrexate in the kidneys | Risk of Methotrexate toxicity ie nausea, vomiting, mouth ulcers and blood count disorders eg bleeding tendencies |

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| Activity 3: **Drug Interactions**  With reference to the resources listed below, answer the following questions:  By what mechanism do antacids interact with tetracyclines?  By what mechanism does rifampicin interact with oral contraceptives?  Resources:  Barber, P.and Robertson, D. (2015) Essentials of Pharmacology for Nurses. 3rd edn. Maidenhead: McGraw-Hill or any available Pharmacology textbook  British National Formulary - Search for the drug on BNF/BNFc app or browse the BNF website: Interactions <https://bnf.nice.org.uk> |

**Suggested answer:**

Antacids may contain magnesium and calcium salts which combine with tetracyclines to produce a precipitate which reduces the extent of absorption of tetracyclines

Rifampicin is a potent inducer of the CYP450 enzyme system and will increase the metabolism of oral contraceptives. This would result in a reduction in the efficacy of the oral contraceptive and risk pregnancy.

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| Activity 4:  **Drug interactions - the danger zone**  • Research gentamicin which has a narrow therapeutic window. What drugs interact with gentamicin and what problems/consequences may this cause for the patient? |

**Suggested answer:**

Rifampicin is an aminoglycoside antimicrobial agent, prescribed for bacterial infections e.g., tuberculosis. It is not absorbed from the gut and therefore cannot be administered orally.  
It must be administered by injection for systemic infections. It is important that serum concentrations of gentamicin are measured as there is a risk of toxicity e.g., nephrotoxicity, ototoxicity (due to narroe therapeutic window) also sub-therapeutic levels (reduction in efficiacy)

As rifampicin is a powerful inducer of the CYP450 enzyme system then given concomitantly it can increase the metabolism of drugs through up-regulation of enzymes (CYP2D6 & CYP3A4) eg ramipril, amlodipine, warfarin.

**PART 3 – CONSULTATION COMMUNICATION AND CLINICAL DECISION MAKING**

**Consultation Models** [Menu](#_top)

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| Activity 1:  **Consultation Models in Practice.**  Consider the following questions:  1. Which consultation model best matches your approach to consultation/assessment?  2. Will this model remain appropriate when you become a qualified nurse?  3. Are there elements of different models that you would choose to integrate into the overall model used? |

**Suggested content:**

• Considers the consultation model which best matches their approach and can identify why

• Identifies the relevance of consultation models within nursing and critically considers influences of practice areas upon the consultation model employed

• Is able to identify different elements and support their thinking through critical consideration of their rationale

**PART 3 - FACTORS THAT INFLUENCE PRESCRIBING**

**Factors influencing the patient**

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| Activity 1:  **Factors influencing the patient.**  Consider the following sentence:  "The effectiveness of any prescribing decision is largely reliant upon the agreement of the patient to a negotiated treatment plan"  Think about examples when this may not be possible, bear in mind:  • different fields of nursing  • capacity  • consent  • age  • legal status |

Purpose

The activity Is designed to get students to think about wider implications of developing a treatment plan. The aim is to move from a closed question such as “does the patient follow their treatment plan”? The question is posed to allow students to consider any relevant factors which may influence this. Completion of this activity would link in with the following wider themes **person centred care, NMC prioritising people and delivering safe effective care**

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| **Consider** | **Prompts** |
| Field of nursing | May be relevant in terms of care delivered. Mental Health more likely to work within MHA- likewise for children and CA. |
| Capacity | May have to consider Mental Capacity Act if appropriate. Consider how is capacity assessed  What may you do if the patient doesn’t have consent?  Is consent a standalone concept or dependant on the decision to be made. Example “ does a patient either have consent or not”  Gillick competency may also be relevant.  Consider altered state ie UTI and cognitive functioning |
| Consent | Has the student consented, are they able to consent- has information be shared at an appropriate level ie leaflets to take away. How as consent been given ie implied consent- signed care plan |
| Age | Relates to information given. May also need to consider role of family/carers and parents (if child) |
| Legal status | Mental Health Act and Children Act may be other issues to consider (this is not designed to be an exhaustive list and may generate discussion) |

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| Activity 2:  **In the patient’s shoes**  Reflect upon your last visit to your GP surgery or hospital:  How did you feel as a patient?  What were your expectations?  What influenced your expectations?  Did you feel satisfied with the experience and why? |

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| Activity 3:  **External influences on prescribing**  One of the first places patients might go to look up information about their condition is the internet. Undertake a basic internet search of one of the conditions you have seen recently and explore the following:  Is the information accurate?  Does it provide the reader with a balanced representation of the information?  Are there any obvious biases, such as drug company sponsorship?  Is the information supported by the related research? |

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| Activity 4:  **Patient Expectations**  One of the most common expectations from a consultation is that the outcome of the consultation will be the generation of a prescription. The reasons for this may vary but can include; evidence to others that they are unwell or validation of exemption from responsibilities. Such factors may be responsible for the increased and unnecessary over prescription of medication (Bala et al, 2019)  Reflect on observed practice and identify reasons that might contribute to the patients expectation that a prescription should be generated. |

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| Activity 5:  **Patient Health beliefs**  Read the following scenario:  Monty is 48 years old and has smoked 25 cigarettes a day for the past 22 years. He has developed hypertension and the prescriber also notices that he has a chesty cough. He recently lost his grandmother, who was 96 years old and had also smoked since her teens (and continued to do so until her death).  Now consider the how the factors in this situation might be applied to the ‘beliefs’ described by Becker? |

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| Activity 6:  **Benefits and Barriers to Prescribing**  Reflect on the dynamics, structures and processes within your placement area and the wider multi-disciplinary team. Consider the following questions:   1. Identify 5 benefits to gaining a prescribing qualification. 2. How will these benefits be communicated to patients, the team and the organisation? 3. Are there any potential barriers to nurses using their prescribing qualification to its full potential? 4. How can you overcome these barriers? Remember to consider short and long term actions where appropriate. 5. would you feel confident to prescribe as a newly qualified nurse? |

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| Activity 7:  **Personal Influences**  Access the article below via your university’s on-line journal database:  Hall, J., Noyce, P. & Cantrill, J. (2008) 'Why do District Nurse Prescribers alter their prescribing patterns?' British Journal of Nursing, 13(11), pp.507-513.  Reflect on your own practice and make a list the factors that might influence prescribing decisions. |

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| Activity 8:  **Organisational Influences**  Find out the following information by accessing your placement Trust intranet or by liaising with colleagues:   1. How will prescribing be integrated into the future nurse? 2. What support mechanisms are in place for prescribers within your placement Trust? 3. Who is your prescribing lead and what is their role? |

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| Activity 9:  **Pharmaceutical Representatives**  Use your university’s on-line journal search facilities to access some of the following articles:  Crock, E. (2009) 'Ethics of Pharmaceutical Company Relationships with the Nursing Profession: No Free Lunch....and No More Pens?', Contemporary Nurse, 33(2), pp.202-209  Ferner, R.E. (2005) 'The influence of big pharma’ British Medical Journal, 330 (7496), pp.855-56  Grundy, Q., Bero, L., & Malone, R. (2013). Interactions between Non-Physician Clinicians and Industry: A Systematic Review.PLoS Medicine,10(11), e1001561.  Moynihan, C. (2003) ‘Who pays for the pizza? Redefining the relationships between doctors and drug companies. V1: Entanglement’ British Medical Journal, 326 (7400), pp.1189-92  Having familiarised yourself with the Pharmaceutical Industry Code of Practice and read the articles, consider the following questions:  • What are the potential influences from the pharmaceutical industry on your practice?  • How can these be managed?  • What is your placement Trust policy is in relation to drug representatives?  \*Links: <http://doi.org/10.1371/journal.pmed.1001561> |

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| Activity 10:  **Unvoiced agendas**  Use an online journal database to access the following articles. Take time to read these and note the key issues:  Barry, C et al (2000). Patients’ unvoiced agendas in general practice consultations: qualitative study. British Medical Journal, 320:1246-1250  Malpass, A., Kessler, D., Sharp, D. & Shaw, A (2011) I didn’t want her to panic: unvoiced patient agendas in Primary Care consultations when consulting about antidepressants, British Journal of General Practice, Vol.61, No. 583, pp.e63-e71 |

**PART 3 - PRESCRIBING SAFELY, APPROPRIATELY & COST EFFECTIVELY**

**Principles of Prescribing Practice** [Menu](#_top)

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| Activity 1:  **Which Strategy?**  Think about a patient from your area of practice. Consider the strategy options listed above and identify what the options would be for that patient if a prescription was not appropriate. |

**Suggested content**

* Listened to patient concerns
* Considered presenting symptoms
* Offered information and advice
* Thought about non-pharmacological alternatives including diet, exercise, social prescribing etc

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| Activity 2:  **Review**  Identify a patient you have cared for. Consider one drug that was prescribed and reflect on how this was monitored and evaluated for its effectiveness.  Were there any factors which affected the patient's adherence to treatment? |

**Suggested content**

* Identifies an appropriate case scenario and medication
* Considers assessment process and a holistic approach
* Is able to explore and discuss the patient diagnosis and appropriateness of medication
* Identifies the options for alternative treatment
* Considers and discusses how the effectiveness was monitored and critically explores the approach taken identifying what was good and what could have been done in a better way
* Thinks about if the approach to monitoring and effectiveness follows guidelines for the medication
* Shows an awareness of how factors such as side effects, patient perception, taste etc may influence adherence

**Monitoring**

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| Activity 1:  **Knowing your conditions**  1. Identify a condition relevant to your field of nursing practice.  2. For the condition, review your knowledge under the following headings:  • Presentation  • Aetiology (cause)  • Natural History  • Progression / Prognosis if untreated  • Implications for the patient / Key patient issues  • Clinical indicators (of worsening / improving or managed condition)  • Management aims  • Management and treatment options  • Supporting evidence / Clinical guidelines |

**Suggested content**

* Identifies a condition appropriate to field of practice
* Has critically considered the points listed
* Demonstrates an ability to access guidelines and applies an evidence based approach to the review of their knowledge

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| Activity 2:  **Reviewing monitoring methods.**  Study the documents accessible at the following links:  The Medicines and Healthcare products Regulatory Agency (MHRA)  NHS Evidence (search on drug monitoring - the link will take you to NICE)  Identify a condition in your clinical practice. Consider the following:  Give an account of the methods used to monitor the responses to treatment  Identify the desired medication results: include a timeframe and any laboratory markers  Identify any undesired medication results (e.g. ADRs) for which the patient be monitored  Identify the frequency and intervals that you feel would be appropriate when reviewing patients with this condition  \*Link: <https://www.gov.uk/government/organisations/medicines-and-healthcare-products-regulatory-agency> |

**Essentials for Safe Prescribing**

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| Activity 2:  **Treatment Options**  Consider a patient complaining of shoulder pain following an injury.   1. What non-medical treatments might be useful for this injury? 2. What are the benefits to the patient and the prescriber? |

**Suggested content**

* Considers referral for interventions such as physiotherapy
* Is able to discuss the long-term benefits of other treatments
* Includes some reference to the multi disciplinary team

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| Activity 3:  **Good Prescribing**  With respect to your field of nursing identify an individual where concerns were raised about their understanding of their drug regime.  • How did this impact on their safety and wellbeing?  • What steps or actions should have been or were taken to improve understanding, concordance and adherence? |

**Suggested content**

* Identifies a condition and drug regime appropriate to their field of practice
* Demonstrates an understanding of the impact of non adherence upon treatment outcomes
* Has an awareness of informed consent and responsibilities to provide information and education
* Considers a person-centred approach listening to the patient
* Considers using a range of information sources

**PART 3 – LEGAL AND PROFESSIONAL FRAMEWORKS FOR MEDICINE MANAGEMENT AND NON-MEDICAL PRESCRIBING**

**Prescribing Unlicensed Medicines and Off-Licence/Off-Label**

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| Activity 1:  **Mixing medicines.**  Mixing of medication is more likely in palliative care when utilising syringe drivers to administer medication.   1. What may be the indications for medication being prescribed via parenteral route instead of the oral route in palliative care? 2. Utilising the BNF - which anti emetic medications can be mixed with diamorphine in a syringe driver? |

**Suggested content:**

**1. Indications for medication being prescribed via parenteral route instead of the oral route in palliative care:**

Indications for the parenteral route listed in the BNF:

* patient is unable to take oral medications due to
* nausea and vomiting
* dysphagia
* severe weakness or coma
* there is malignant bowel obstruction in patients for whom further surgery is inappropriate
* occasionally when the patient does not wish to take regular medicines orally

Additional reasons that may be listed:

* difficulty swallowing due to severe oral lesions ulceration or painful fungal infection
* poor absorption of oral medicines

**2. According to the BNF, the anti-emetic medications (listed alphabetically) that can be mixed with diamorphine in a syringe driver:**

Suggested content: (as per BNF)

1. **cyclizine** - but is likely to precipitate
2. at concentrations of midazolam above 10mg/mL
3. as the concentration of diamorphine increases
4. if sodium chloride 0.9% used as a diluent
5. after 24 hours
6. **haloperidol** - but is likely to precipitate after 24 hours if concentration of haloperidol above 2mg/mL
7. **levomepromazine -** but sedation may limit the dose used drowsiness, dry mouth
8. **metoclopramide** - but may cause skin reactions

**Additional content may include:**

* Other drugs that may be mixed with diamorphine for effective symptom control, but not normally listed for use as anti-emetics:

1. midazolam
2. dexamethasone
3. hyoscine butylbromide
4. hyoscine hydrobromide

* Usual parenteral route is continuous subcutaneous infusion by syringe driver
* Local palliative care formularies should be referred to when selecting medicines for parenteral use
* Morphine is commonly used as first choice for subcutaneous infusion, diamorphine has greater solubility and therefore can be given in smaller volumes.
* Subcutaneous infusions should be checked regularly for precipitation or discolouration.

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| **Key source:**  Current edition of the British National Formulary (BNF)  Especially section on *Prescribing in palliative care*  **Other sources:**  Local palliative care management guidelines  Example:  Northern England Clinical Networks (2016) *Palliative and End of Life Care Guidelines: Symptom control for cancer and non-cancer patients.* Available at: <http://www.northerncanceralliance.nhs.uk/wp-content/uploads/2018/11/NECNXPALLIATIVEXCAREX2016-1.pdf> |

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| Activity 2:  **Crushing, splitting, opening oral medication**  Referring to the Royal Pharmaceutical Society (2011) guidance on 'Crushing, splitting, opening oral medication' reflect briefly on what the impact could be of:  • Opening an enteric coated capsule  • Crushing a tablet  • Splitting a tablet |

**Suggested content**

1. **Dosage Form effects**

**1.1 Extended release products:** crushing, opening or splitting may result in

1. Unintended large bolus dose being delivered
2. Risk of toxicity and increased risk of other adverse effects
3. Subsequent under-dosing resulting in lack of clinical efficacy

**1.2 Enteric coating products:** crushing, opening or splitting may result in:

1. Early release of drug
2. Drug destruction by stomach acid or
3. irritation of stomach lining
4. **Potential Consequences** 
   1. **Risks to healthcare workers:**
5. exposure to drugs through crushing and powder aerolisation (examples might include to carcinogenic products (tamoxifen or methotrexate) or to hormones (oral contraceptives) or to oral steroids (dexamethasone)
6. exposure to drugs through crushing and irritant contact with drugs (e.g. alendronate, diflunisal, isotretinoin, piroxicam, ganciclovir
   1. **Drug instability:**
7. breakdown of an enteric coating protecting the drug from the acid environment of the stomach results in initial increased degradation of the drug with lowered drug availability to produce the intended clinical effect
8. removal of drug coatings protecting light-sensitive drugs e.g. nifedipine
   1. **Changes in pharmacokinetics and bioavailability:**
9. effect of underdosing or adverse effects
10. changes may be most significant for drugs with narrow therapeutic windows e.g. phenytoin, digoxin, carbamazepine, theophyliine or sodium valproate

**2.4: Drug irritation:**

1. Irritation or ulceration of the oesophagus
2. Irritation or ulceration of the stomach

**2.5 Bitter taste:**

1. Without a coating or film designed to ask the unpleasant taste of a drug, the patient may not continue taking the drug or
2. Drug may be consumed inappropriately with food of liquids to mask the unpleasant taste

**2.6 Need for increased patient monitoring:**

1. due to potential for increased effects e.g. hypotensive effect of ramipril or e.g. hypoglycaemic effect of glibenclamide or metformin
2. **Circumstances in which it may be appropriate to consider crushing, opening or splitting**
3. only if satisfied that the drug can be safely administered

**Students may also include additional considerations** that manipulating a medicinal product by crushing, opening or splitting may result in a form of the drug that is unlicensed thereby:

1. increasing the risk of harm to the patient
2. increasing his/her own liability and that of the employer

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| **Key sources:**  Royal Pharmaceutical Society (2011) *Pharmaceutical Issues when Crushing, Opening or Splitting Oral Dosage Forms.* Available at: <https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Support/toolkit/pharmaceuticalissuesdosageforms-%282%29.pdf> |

**Legal Mechanisms for Prescribing, Supply and Administration of Medicines**

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| Activity 1:  Under the Misuse of Drugs Act 1971 and Misuse of Drugs Regulations 2001, midazolam is a benzodiazepine medication and therefore a Class C, Schedule 3 drug.  Explore for which organisations and individuals a PGD for buccal midazolam could be beneficial? |

**Suggested content:**

1. The use of buccal midazolam

1.1 Key points:

a) buccal midazolam is used for the management of status epilepticus/ febrile convulsions in children and in adults and

b) effective management of seizures reduces risk of hospital admission, mortality and morbidity

1.2 May also identify:

• Indications for the use of buccal midazolam in BNF/BNFc (current dosages can be indicated using the current edition of the BNF/BNFc);

• Convulsive status epilepticus as a medical emergency requiring admission to hospital and has a mortality rate of up to 20 per cent

• Effective management of seizures in the community and the use of rescue medication by trained carers at the right time for the right purpose can significantly improve outcomes by reducing risk of hospital admission, mortality and morbidity

• When intravenous access is not available, non-intravenous routes for the administration of benzodiazepines must be used. Buccal midazolam has similar or better efficacy than rectal diazepam and the buccal route of administration for midazolam is also more socially dignified than rectal administration.

2. Patient Group Directions (PGDs)

2.1 Key points:

a) PGDs are a legal framework

b) PGDs permit healthcare professionals to supply and/or administer specified medicines

2.2 May also identify:

• PGDs as “written instructions for the supply or administration of medicines to groups of patients…” (Health Service Circular, 2000)

• Therefore, allow healthcare professionals to supply and/or administer specified medicines to pre-defined groups of patients, without the need for a prescription or an instruction from a prescriber

•PGDs not a form of prescribing.

3. Medicines that can be included in a PGD

3.1 Key Point:

a) Schedule 3, midazolam may be included for supply and/or administration under a PGD

3.2: May also identify:

• medicines that can be included for supply/administration under a PGD:

•medicines with a UK marketing authorisation (POMs, P and GSL listed) (NICE, 2017: 1.1.6) )

• off-label use of a licensed medicine - though only when clearly justified by best clinical practice (NICE, 2017: 1.1.7)

• controlled drug -though only when legally permitted and clearly justified by best clinical practice (NICE, 2017: 1.1.9)

•controlled drugs that may be included in a PGD:

•Schedule 2 - morphine and diamorphine – though only by registered nurses and pharmacists for the immediate necessary treatment of a sick or injured person, not for addiction

• Schedule 2: ketamine

• Schedule 3: tramadol, gabapentin and pregabalin may not be supplied or administered under a PGD

• Schedule 4: all drugs (except anabolic steroids and injectable medications used for treating addiction)

• Schedule 5: all drugs.

4. Which healthcare professionals could supply/administer midazolam using a PGD?

4.1 Key Points:

a) Nurses are permitted to supply and administer under a PGD

b) Must be registered

c) Must be authorised to supply/administer under the PGD

4.2 May also identify:

• Other healthcare professionals permitted to supply or administer under a PGD:

• chiropodists and podiatrists

• dental hygienists (but not permitted to administer or supply CDs under a PGD)

• dental therapists (but not permitted to administer or supply CDs under a PGD)

• dieticians (but not permitted to administer or supply CDs under a PGD)

• midwives

• occupational therapists

• optometrists

• orthoptists

• orthotists and prosthetists

• paramedics

• pharmacists

• physiotherapists

• radiographers

• speech and language therapists (but not permitted to administer or supply CDs under a PGD)

• Healthcare assistants, nurse associates (and physicians associates) do not have permissions to use a PGD

5. Which organisations can use a PGD for supply and/or administration of medicines?

5.1 Key Point:

a) NHS organisations in primary and secondary care

5.2 May also identify:

• local authorities (in England)

• public-funded services provided by non-NHS organisations, such as:

• prison healthcare services

• police services

• defence medical services

• independent organisations (for example, independent hospitals, dental clinics and practices)

• independent contractors (for example, community pharmacies)

• voluntary and charitable agencies (for example, hospices).

6. What are the responsibilities of a healthcare professional before using a PGD to supply/administer buccal midazolam?

6.1 Key Points:

a) act within code(s) of professional conduct

b) follow local organisational and governance arrangements

6.2 May also identify:

• undertaken training to use the PGD

• assessed as competent to use the PGD  
• completed the appropriate documentation to be able to use the PGD

7. Other considerations for operating the PGD safely

• A PGD may be used to supply or administer medicines at a variety of locations including in a patient’s home, a surgery or health centre, a pharmacy or an Urgent Care Centre

• A single PGD can be used to supply or administer medicines to patients in their own homes or in more than one location.

• If a location for use has been specified on the PGD, this must be adhered to

• Obtain the patient/client’s consent to use of the PGD (NICE 2017, 1.5.7)

Example of a national PGD template: developed for ambulance services commissioned by NHS England for the administration of buccal midazolam by registered paramedics and nurses for the management of seizures and that could be locally adapted before clinical sign-off and adoption: <https://www.sps.nhs.uk/articles/national-ambulance-patient-group-directions/>

**PART 3 – PUBLIC HEALTH**

**Prescribing for Specific Groups** [Menu](#_top)

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| Activity 1:  **Identifying Specific Groups**  Some public health needs will relate to genetic differences, whilst others may be social in origin. Identify which of the specific groups identified above will feature within your placement area.  What specific public health issues have been identified in the best evidence base relating to those groups? |



**- End of Document -**

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