This training pack comprises 3 general sections plus a hospital practice section and a primary care section.

Training can be delivered during one lecture session or during several small group teaching sessions which will allow discussion of the content. Each section is supported by suggestions for CPD evidence that the practitioner may document to demonstrate an understanding of the key issues.

*Please note: SAPG and NES accept no liability, as far as the law allows us to exclude such liability, for the accuracy or currency of the training pack content once it has been amended or otherwise revised in any way by a territorial board/third party to reflect local policy and information.
This presentation is divided into sections each designed for a 45-60 minute teaching session. For Foundation Year doctors’ initial induction training, a total of up to 10 slides should be chosen from sections 2, 3, and 4 to cover the key points, as agreed locally.

The notes in bold print give suggestions for discussion.
In this section we will look at current approaches within Scotland to tackle antimicrobial resistance and highlight key points about local practice for practitioners using antibiotics.

Learning Outcomes

The practitioner will be able to:

• Source current national strategic aims and guidance on antimicrobial prescribing
• Describe the key priority areas of national strategic planning
• Identify how national antimicrobial prescribing strategy is translated into local policy
• Use national and local guidance/directives to influence personal prescribing practice
ScotMARAP was produced by the HAI Taskforce of Scottish Government as a follow up to the document which advised on hospital practice – Antimicrobial Prescribing policy and Practice in Scotland, 2006.

ScotMARAP makes specific recommendations about NHS Board structures to support prudent prescribing, local antibiotic policies, data on prescribing and surveillance and education of staff across primary and secondary care. This document is the key driver for changes that you may see happening locally around the use of antibiotics. All clinical staff are responsible for ensuring they use antibiotics correctly to reduce antimicrobial resistance and preserve the usefulness of antibiotics in treating serious infections.

Ask practitioners what they understand by the term ‘antimicrobial resistance’ and why they think it is a problem which needs addressed.
The Scottish Medicines Consortium is responsible for assessing the clinical effectiveness and cost-effectiveness all new medicines and new indications for existing medicines to decide if they should be used within NHS Scotland. SAPG is hosted by SMC and follows the same collaborative structure i.e. decisions that will influence practice at NHS Board level are made by NHS Board representatives. SAPG is responsible for producing national guidance and advice for NHS Boards to help implement the recommendations of ScotMARAP.

May be useful to highlight who the representative on SAPG is from your own Board.

Can also explain what national stakeholders do:

Health Protection Scotland coordinates national health protection including monitoring of infectious diseases and surveillance of bacterial resistance.

Information Services Division collects and analyses health service information including data on antibiotic use and prevalence of infections in the Scottish population.

NHS Education Scotland helps to provide better patient care by providing educational solutions for workforce development of all healthcare professionals.

Healthcare Improvement Scotland have a lead role in supporting NHS boards and their staff to improve the quality of healthcare in Scotland.
Within Scotland the HAI Taskforce (now Scottish Antimicrobial Resistance and Healthcare Associated infection Strategy Group), set up by Scottish Government, is responsible for delivering the HAI Delivery Plan which addresses all issues relating to HAI - healthcare facilities, clinical practice, education of staff and public.

The HEI was set up as an independent body to inspect hospitals against a series of national standards to give public assurance that hospitals are clean, staff are properly trained in infection control, Board structures for Infection Control and Antimicrobial Management are working effectively and data management systems are used effectively to detect and prevent spread of HAI.

**Discuss what practitioners understand by the term HAI. Get practitioners to discuss any personal experiences of HAI.**
AMT is a sub-group of the Area Drug & Therapeutics Committee (ADTC).
At local level ADTC makes decisions on all aspects of ‘use of medicines’. This includes evaluating advice from SMC to approve new drugs for use locally, reviewing and maintaining the local Formulary and prescribing guidelines, approving any new guidelines on use of medicines. ADTC is multidisciplinary, covers secondary and primary care and includes representatives from all key clinical specialties.
AMT is responsible for all aspects of antimicrobial use at local level.
This slide shows how the AMT should interact with various staff groups and committees.

**Highlight links close to prescriber – communication with clinical pharmacists and Microbiology/ID essential for optimum use of antibiotics.**
Highlight who these individuals are and their roles within the Board.

Although the AMT is made up of mainly hospital representatives its remit also covers use of antibiotics in primary care. The primary care representative on the AMT is usually a GP or a Prescribing Adviser and they should link with other Primary Care committees and groups to ensure that any initiatives are cascaded throughout all community settings within the Board.
Antimicrobial policies must contain key information, defined by SAPG, but format may vary between Boards.

Policies are reviewed bi-annually and updated to reflect any new evidence and changes in local resistance patterns.

Show local policies – booklets, posters, intranet, app
This section will look at how an infection should be diagnosed, treated and monitored and how to use Microbiology services effectively.

Learning Outcomes

The practitioner will be able to:

• Outline the criteria for establishing that a patient has an infection
• Relate patients’ history, signs and symptoms to decisions made to prescribe (or not to prescribe) antibiotics
• Discuss the purpose and importance of microbiology samples in clinical decisions made to prescribe antibiotics
Antibiotics are powerful medicines which can save lives but we must ensure we use them prudently.

Antibiotics should only be used where there is a clear indication and a definitive diagnosis of infection. SIRS criteria are key to diagnosing systemic infections. Documentation of symptoms and of SIRS criteria in medical and nursing notes are important for clinical governance. While WCC takes time to obtain via lab, temperature, heart rate and respiratory rate are easily measured and should be part of routine clinical practice in both diagnosing serious infection and monitoring response to treatment.

Practitioners should be alert to the symptoms of severe sepsis which require the patient to be admitted to Intensive Care urgently.
Microbiology samples can provide valuable information to support diagnosis and treatment of infection but microbiology services cost money and take time. It is therefore essential that microbiology services are used effectively to keep costs and time delays for essential samples to a minimum.

When sending samples to microbiology ensure that correct sample tube is used and that laboratory request form includes as much detail as possible: patient details, time and type of sample, reason for sending sample e.g. suspected site of infection, colonisation, infection screen.
Interpretation of microbiology results requires knowledge of the patient and their current clinical condition. Past medical history may also be important if the patient has previously had an HAI or has a recurrent infection. In primary care lab results may take longer to come back, if not available electronically, therefore samples should only be used in selected patients rather than to confirm that empirical treatment is suitable.
Many factors may affect which antibiotic is used.

Discuss these with examples e.g. which organisms found in which part of body, antibiotics unsuitable for specific patient groups, narrow versus broad spectrum antibiotics.
This section will consider how we can ensure that we use antibiotics wisely – only use when needed, select correct antibiotic and ensure appropriate duration of treatment.

Learning Outcomes

The practitioner will be able to:

• Discuss the scale of antibiotic use within hospitals and the community in the UK
• Outline the problems which may result from inappropriate use of antimicrobials
• List the essential information required to correctly prescribe an antibiotic
• Describe how a specific antibiotic is chosen for treatment of an infection
• Explain the importance of the identification and recording of an appropriate indication and duration of antibiotic treatment
• Identify commonly occurring errors made when prescribing antibiotics
• Discuss the importance of patient concordance with antibiotic treatment
Many studies in various countries have shown that 25-35% of patients in acute hospitals receive antibiotics during their in-patient stay. Many prescriptions for antibiotics are inappropriate – no clear diagnosis, wrong choice of antibiotic, extended course, treating lab result rather than clinical symptoms.

Surgical prophylaxis is the use of antibiotics in surgery to prevent wound infections. Evidence supports the use of a single dose administered pre-operatively but in many cases further doses are given and this may extend to several days of treatment. SIGN 104 provides guidance on which procedures require surgical prophylaxis and local antibiotic policies provide guidance on which agents to use.

Antibiotics can be expensive, especially IV formulations (up to £100 per day). Adverse effects of inappropriate use result in increased cost due to increased length of stay.

The extent of use of antibiotics in primary care is less well documented but practice does vary significantly between GP Practices. About 80% of antibiotics use in human is in primary care therefore this has major impact on development of resistance and also on risk of *C. difficile* infection (CDI).
Documentation of decisions about using antibiotics are a critical clinical governance issue e.g. if a patient didn’t respond to treatment or developed *C. difficile* infection (CDI).

If unsure always seek advice from senior colleagues, microbiologist or clinical pharmacist.
As mentioned previously documentation is a key requirement for clinical governance. In Scotland, recent outbreaks of *C. difficile* infection (CDI) have resulted in patient records being scrutinised for evidence of how patient care has been delivered. Remember in this type of scenario if it isn’t written down it didn’t happen. In ward situation ask microbiologist or pharmacist to document their advice in the medical notes. If phoning a microbiologist or pharmacist for advice remember to write down in the medical/nursing notes what they advised you to do.
Medicine kardexes are also important sources of information for clinical governance. In the ward situation, clinical pharmacists will check that prescriptions for antibiotics comply with these requirements and will highlight any discrepancies to the prescriber. However, if nursing staff are aware that the prescription does not include any of these details they should also query this with the prescriber.
Duration of treatment is an important factor as extended duration can put patients at risk of cumulative adverse effects due to the antibiotic and can also increase the risk of HAI.

For most infections it is possible to decide the duration of treatment when the diagnosis is confirmed. In some cases of severe infection, it may be preferable to document a review date and decide on a stop date then.
Medication errors are common and often go unreported. These are some common errors associated with antibiotic treatment.

Many patients say they are allergic to penicillin but many have experienced an adverse reaction that is not hypersensitivity.

**Discuss possible reactions and definition of hypersensitivity. Discuss strategies for choosing antibiotics in patients who have true penicillin allergy and those with previous non-hypersensitivity reactions.**

Empirical treatment is often with a broad spectrum antibiotic but this can often be changed to a narrow spectrum agent once microbiology results are confirmed.

**Discuss what de-escalation is.**

Patients with infections often require to leave the ward for procedures such as X-rays and may miss a dose of their antibiotic. This can have serious consequences, particularly for patients on antibiotics which are only administered once or twice daily. A missed dose can result in the blood level of the antibiotic falling below the concentration that will kill the pathogen which may result in treatment failure, delayed response to treatment and can also allow the organism to select for resistance.
Inappropriate use of antibiotics can have consequences for the individual patient and also the wider population.
Patients also have an important role to play in prudent use of antibiotics. If an antibiotic is prescribed patients must be advised of the need to complete the course—inadequate treatment can result in development of resistance.

Knowledge about when to take antibiotics in relation to food and information about adverse reactions and drug interactions can aid compliance.
In this section we will look at use of IV antibiotics, details of how to use gentamicin and vancomycin safely, and healthcare associated infections.

Learning Outcomes

The practitioner will be able to:

• Provide a description of an IVOST policy (IV to oral switch therapy)
• Describe the criteria for use of the intravenous route for administration of antibiotics
• Outline when and how gentamicin should be used, including details of dosage, monitoring and potential toxicities
• Outline when and how vancomycin should be used, including details of dosage, monitoring and potential toxicities
• Discuss the rational and specific guidance for the use of antibiotics as prophylaxis in certain surgical procedures
• Outline when and how antibiotics should be used in MRSA infection
• Describe how the use of antibiotics may put patients at risk of *C. difficile* infection (CDI)
• Identify the local availability of specialist advice on the use of antibiotics
Intravenous antibiotics have the advantage of giving high blood levels quickly. In severe infection this can be life-saving.

**Discuss disadvantages of IV antibiotics – risks of line problems, allergic reactions, complexity of preparation and administration.**
IV therapy carries more risk than oral and is also more expensive so patients should be switched onto oral therapy as soon as possible.

Extended IV therapy (> 48-72 hours) is rarely indicated and carries risk of phlebitis, line infection or occlusion.

Some conditions may require longer term IV treatment e.g. endocarditis, meningitis, bone/joint infections.
Gentamicin is the most frequently used of the aminoglycosides. It can only be given by the IV route and dosage is tailored to the individual patient’s requirements. Gentamicin use has increased recently due to changes in antibiotic policies which have restricted 4C agents which provide gram negative cover due to concerns about C. difficile infection (CDI).

More information about use of gentamicin is available via the Antibiotic Prescribing for Today’s Practitioners resources or the Gentamicin online module – see NES website, HAI online short course page.

**Discuss the use of on-line calculators and/or Cockcroft-Gault equation. Highlight how to access calculator on intranet and app**
Monitoring of levels is essential to ensure that peak gentamicin levels are high enough to be effective and that trough levels are low enough to prevent toxicity.

May want to present some examples of case studies that illustrate how to calculate dosage and adjust dosage.

Further training relating to Gentamicin is available on learnPro accessed via the HAI pages of the NHS Education for Scotland website.
Vancomycin is a glycopeptide antibiotic used for treatment of gram positive infections, in particular MRSA.

**Discuss use of online dose calculator and/or Cockcroft-Gault equation.**

**May want to present a case study of vancomycin dose calculation.**

Vancomycin is complex to prepare and administer. Further details on vancomycin use are available within the Antimicrobial Prescribing for Today’s Practitioners resource or the vancomycin module. Resources are available on learnPro accessed via the HAI pages of the NHS Education for Scotland website.
Vancomycin monitoring is essential to ensure effective treatment and to minimise toxicity.

Further training relating to Vancomycin is available on learnPro accessed via the HAI pages of the NHS Education for Scotland website.
Surgical prophylaxis is the use of antibiotics in surgery to prevent wound infections. Evidence supports the use of a single dose administered pre-operatively but in many cases further doses are given and this may extend to several days of treatment. SIGN 104 provides guidance on which procedures require surgical prophylaxis and local antibiotic policies provide guidance on which agents to use.
MRSA is a resistant strain of *Staph. aureus*. Patients who are MRSA positive require to be isolated and standard infection control precautions maintained.

**Highlight the difference between MRSA colonisation and infection.**

**Discuss local MRSA screening programmes and eradication regimens.**

Further training is available via online training from the HAI pages of the NHS Education for Scotland website.
MRSA is usually a healthcare associated infection in the UK. Patients with wounds and those who are immunocompromised are at particular risk.

In the USA community acquired MRSA is common.
C. Difficile Infection (CDI) is usually a healthcare associated infection which is monitored locally and rates are reported nationally.

Further training is available via online training from the HAI pages of the NHS Education for Scotland website.
Some patients are at increased risk of *C. difficile* Infection (CDI). Often antibiotic use in primary care can present a risk for elderly patients, those on chemotherapy and those with immunosuppression who are subsequently admitted to hospital.
**C. difficile** Infection (CDI) requires prompt treatment with an antibiotic. Choice of antibiotic is based on severity of symptoms.

**Discuss policy for severity scoring.**

When a patient is diagnosed with **C. difficile** Infection (CDI) medication should be reviewed – antibiotics (other than those to treat CDI) should where possible be stopped, proton pump inhibitors should be stopped if possible and any medicines for diarrhoea or constipation stopped.
These websites can provide further information on the work of SAPG and on HAI.
In this section we will look at the management of common infections in primary care and highlight key points about local practice for practitioners using antibiotics.

Learning Outcomes

The practitioner will be able to:

• explain the use of antibiotics in self-limiting conditions
• describe the value of patient information leaflets and delayed prescribing
• outline how primary care practice in use of antibiotics may influence healthcare associated infection and development of antimicrobial resistance
• identify local antibiotic choices for common infections
• explain the national prescribing indicators for antimicrobials and how these can be used to evaluate local practice
• identify the local availability of specialist advice on the use of antibiotics.
Hospitals have been the focus for recent changes in the use of antibiotics in Scotland. However the majority of antibiotic use is within primary care. Respiratory infections represent a significant proportion of GP workload particularly during the winter months. Use of antibiotics for viral infections remains a significant problem and impacts on development of antimicrobial resistance at local level.

ScotMARAP makes specific recommendations about NHS Board structures to support prudent prescribing, local antibiotic policies, data on prescribing and surveillance and education of staff across primary and secondary care. This document is the key driver for changes that you may see happening locally around the use of antibiotics. All clinical staff are responsible for ensuring they use antibiotics correctly to reduce antimicrobial resistance and preserve the usefulness of antibiotics in treating serious infections.

Ask practitioners what they understand by the term ‘antimicrobial resistance’ and why they think it is a problem which needs addressed.
Evidence supports not prescribing antibiotics for URTI except in specific circumstances.

**Discuss the quality indicator for reduction of total antibiotic use introduced in 2013 and the Scottish Reduction of Antimicrobial Prescribing (ScRAP) educational programme.**

- Children under 2 years with Bilateral Otitis Media
- Acute otitis media in children with otorrhoea
- Acute sore throat with 3 or more CENTOR criteria (tonsillar exudate, tender anterior cervical lymphadenopathy, lymphadenitis, fever and an absence of cough) Note that Fever PAIN scoring is now recommended by PHE
- Systemically very unwell
- Pre-existing co morbidity
- Those who are over 65 with at least two of the following, or over 80 and at least one of the following: Admission to hospital in past 12 months; Diabetes; LVF; glucocorticoids.
Studies have shown that patient satisfaction is not compromised by not getting an antibiotic. Patients want to be examined fully and given advice. Receiving antibiotics for viral infections medicalises their illness and increases repeat consultation rate. It is better to give patients advice on self-management of symptoms and the likely course of their illness. It is also useful to highlight the potential side-effects of antibiotics and development of resistant organisms.

**Discuss the group's experience of patient expectations and delayed prescriptions**
HAI is a major public health issue and current priority for NHS boards. Although rarely encountered in primary care, use of antibiotics in the community has implications for subsequent development of HAI such as MRSA and *C. difficile* infection (CDI).

Local antibiotic policies reflect current best practice in restricting the use of antibiotics that are associated with a high risk of *C. difficile* infection (CDI). By following your local policy you can reduce the risk of your patients developing an HAI if they are admitted to hospital.

**Explore the group’s personal/professional experience of HAI**
Antimicrobial resistance is a major public health issue and current priority throughout the world.

Resistance develops to most antibiotics in regular use.

Although encountered less frequently in primary care than in hospital practice, use of antibiotics in the community impacts on development of resistance at individual patient and population level.
Local antibiotic policies provide advice on empirical treatment of common infections and are reviewed regularly.

Policy choices are based on clinical evidence and local resistance patterns.

**Discuss the local choices and explore whether group currently uses these.**
The national prescribing indicators were developed to standardise the monitoring of antibacterial use in primary care. This allows boards to be compared with each other and also for GP Practices within a board to be compared. The local Antimicrobial Management Team and Primary Care Prescribing Support staff work together to evaluate reports on these indicators and identify priorities for further analysis and discussion with prescribers.

**Discuss local data on a selection of the prescribing indicators.**
These websites can provide further information on antibiotic use in primary care.
This section details the contribution that nursing staff can make towards a multi-professional approach to antimicrobial management.

Learning Outcomes

The practitioner will be able to:

• Describe the importance of the nurse role
• Outline the nurse’s responsibility and accountability
• Describe how the nurse role can have an impact on antimicrobial management
• Identify potential benefits of this role
The 3 dimensions of the Scottish Government Healthcare Quality Strategy are safe, effective and person-centred care.

Appropriate use of antibiotics is essential to ensure patients with infections are treated safely and effectively.

Unnecessary use of antibiotics and failure to follow local policies can result in patient harm through inadequate treatment, adverse effects from antibiotics and development of antimicrobial resistance both at a patient and population level.

Antibiotic use is an important feature within many national programmes of work.

Like Healthcare Associated Infections, Antibiotic management is ‘everyone’s business’ and all healthcare professional plus patients and the public have a role to play.
Within the healthcare team nurses spend the most amount of time with patients and deliver much of their hands-on care.

They administer medicines and are well placed to evaluate a patient’s response to their medication.

In the case of antibiotics this involves monitoring routine observations which are affected by infection – temp, pulse rate, blood pressure, respiratory rate.

They are also well placed to assess clinical symptoms such as: are wounds improving, coughs settling, urinary symptoms clearing etc.
Nurses’ role in antimicrobial management is supported by NMC professional accountability and responsibility standards and national programmes. https://www.nmc.org.uk/globalassets/sitedocuments/nmc-publications/nmc-code.pdf

NMC Code principles
• Provide a high standard of practice and care at all times
• Keep your skills and knowledge up to date
• Keep clear legible and accurate records
• What Matters:
  - Translating policy objectives and ambition into best practice at the frontline with the supporting evidence
  - The quality of service we provide and the most efficient and safest way we provide the service
  - The opinion and feedback we receive from the patient and public
  - The opportunity to demonstrate continuing professional development

Evidence of safe practice
• Knowledge Skill Competence approach and maintenance
• What do I have to be knowledgeable about and what skills must I have
• How will I know when I am competent

Leading Better Care components
• Underpinning the role of the senior Charge Nurse
• Ensuring Safe and effective practice
• Person centredness to enhance the patient experience
• Being Effective (manage and develop the performance of the team)
• Contributing to the delivery of the organisation’s objectives
To ensure optimal antimicrobial therapy for a patient there are six key dimensions of antimicrobial management which should be considered by the multi-disciplinary team. Nurses can have a role in each of these six dimensions in collaboration with medical and pharmacy colleagues.
Many patients with serious infections being treated in hospital will require IV antibiotics initially. However most patients in general wards can be switched to oral therapy after 48-72 hours and may be suitable for discharge to complete their course of treatment at home.

Early switch to oral therapy has several advantages for both the patient and ward staff. Removal of IV catheters reduces the risk of adverse events such as phlebitis and the potential for line infection and bacteraemia. Patients are also less restricted in their movement and activities once lines are removed.

From a Nurse's perspective time for line checks and care is no longer required and time for medicines administration is reduced with oral therapy.

Within the clinical team, since nurses have most direct patient contact they are well placed to assess their patient’s response to antibiotic therapy and can prompt de-escalation during multi-disciplinary team meetings/ward rounds.
The majority of patients are commenced on empirical antibiotic treatment, pending microbiology results (if a sample has been obtained).

To ensure they receive the safest and most effective treatment for their infection it is important to follow the local antibiotic policy. These policies are evidence-based and reflect effective choice, dosage and duration of antibiotic whilst minimising the risk of adverse effects such as *C. difficile* Infection (CDI) and antimicrobial resistance.

Allergy to antibiotics is an important factor in choosing an antibiotic for a patient. Penicillin allergy is relatively common but often patients documented as allergic have experienced an adverse reaction to a penicillin that is not a true allergy.

Despite allergies being documented, patients do sometimes still receive an antibiotic to which they are allergic. Antibiotics which are penicillins may not appear obviously so from their name e.g. co-amoxiclav, Tazocin. Always check if unsure.

Empirical treatment should always be reviewed when microbiology results become available to check that the patient is on the most appropriate antibiotic. Often the initial broad spectrum antibiotic can be changed to a narrower spectrum one or an initial combination of 2 or 3 antibiotics can be reduced to just one.

Occasionally the empirical treatment may not be active against the causative organism and a change of therapy is required.
Correct duration of therapy is essential to ensure that the infection is adequately treated but that adverse effects are minimised. Most common infections require treatment for a maximum of 7 days. Exceptions are meningitis, some types of pneumonia, bone and joint infections and endocarditis.

Prolonging antibiotic treatment beyond the recommended duration leads to emergence of resistant strains.

Ideally the duration should be recorded on the Kardex and in the case notes. If duration is unknown at the start of therapy then a review date should be specified – this should be within 72 hours of starting treatment.
Timing is more important for antibiotics than for many other medicines because they are usually administered several times per day. The time between doses affects whether the invading organism is killed or not and also influences development of resistant strains.

Timing may not be ideal for staff administering the antibiotics or patient sleep patterns. Antibiotics given 3 or 4 times per day should be given at regularly spaced intervals.

Prompt administration of antibiotics is essential in patients diagnosed with sepsis as each hour of delay significantly reduces survival. This is addressed by the Scottish Patient Safety Programme/Scottish Antimicrobial Prescribing Group collaborative on Sepsis which aims to improve both recognition and management of sepsis.
Gentamicin is commonly used both in treatment of infections and for surgical prophylaxis to provide gram-negative cover.

Vancomycin is mainly used to treat MRSA but also for other gram positive infections in penicillin allergic patients.

Blood samples for therapeutic blood monitoring are required to ensure that dosage is high enough to treat the infection but not too high as to cause adverse effects on renal function and hearing (gentamicin).

Local policies specify when samples should be taken and the procedure for recording details of these samples.

Once levels have been measured interpretation is necessary to assess whether a change in dose or dosage interval is required.

Pharmacy and microbiology colleagues provide advice on how to respond to levels.
Completion of antibiotic course is an important issue to consider when a patient’s discharge is being planned. Often patients will require to continue their antibiotics for a few days after they go home. Supply of the correct quantity of antibiotics and discussion of how to take them with the patient will ensure that the treatment is completed correctly.

Many NHS boards now offer an OPAT service whereby certain patient groups can attend hospital on a daily basis to receive a dose of an IV antibiotic. Nursing staff are in a suitable position to assess whether patients may be suitable for this type of treatment – they need to be mobile and motivated to ensure they attend daily appointments.
Enhancing Nurses' role in antimicrobial management has many benefits for patients, the clinical team and the NHS board.

Despite the apparent increased workload there are also benefits for nursing staff.
There are challenges with enhancing Nurses' role in antimicrobial management. However this is a very patient-focused role with clear benefits for patient safety and effective treatment.

Enhanced role is aligned with NMC code and with Leading Better Care programme.

Management support is required to break down barriers to change and to empower nurses to take a more active role in antimicrobial management. Many practitioners may already be doing this to a greater or lesser extent.

Team working is the way forward to deliver quality improvements in patient care.

Awareness of the key issues relating to antimicrobial management will allow nurses to develop into this role.
Supporting registered nurses and midwives learning around antimicrobial stewardship and the care of patients with infections.

The educational workbook includes learning activities, videos and a resource library covering antimicrobial stewardship in practice; bacteria, resistance and antibiotics; diagnosis and assessment of infection and special considerations for hospital practice.

Available to download from NHS Education for Scotland website – options include a print pdf file and an interactive pdf file which you can save to your computer and complete online.


Also available as an iBook from iTunes for Apple users. Go to unes at: https://itunes.apple.com/gb/book/id1105865919

The workbook is also available on learnPro NHS for self selection. Please note that learning is not completed online as an e-learning module, but is still completed in the workplace. The learnPro option, simply provides health boards with a mechanism to record completions of the workbook.

You may find the patient safety education scenario which explains more about the workbook helpful. See the NES website at: http://www.nes.scot.nhs.uk/media/3487827/ams_patient_safety_scenario.pdf
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