

Quality Prescribing

Scottish Reduction in Antimicrobial Prescribing (ScRAP) Programme V2

Support Pack





Foreword

The Scottish Antimicrobial Prescribing Group (SAPG) was established in 2008 to lead the national antimicrobial stewardship agenda to address the growing threat of antimicrobial resistance. Through working with local Antimicrobial Management Teams and clinicians across primary and secondary care SAPG has greatly improved prescribing of antibiotics and contributed to the current reduced rates of Healthcare Associated Infections (HAI).

During the past eight years primary care prescribers have significantly changed their practice to reduce use of broad spectrum antibiotics and use recommended narrow spectrum antibiotics to manage common infections. In addition over the past three years there has been success across all health boards with the National Therapeutic Indicator (NTI) for Total Use of Antibiotics and the latest national data shows a 9.5% reduction in total use of antibiotics in primary care between 2012 and 2015. Utilisation of the original **Scottish Reduction of Antibiotic Prescribing (ScRAP) Programme** launched in 2013 has provided educational support for this NTI and encouraged reflection on local practice when prescribing antibiotics.

We are pleased to present this updated resource, ScRAP 2, which provides educational materials for Antimicrobial Management, Medicines Management Teams and GP Clusters to support facilitated quality improvement sessions for primary care prescribers to further reduce unnecessary use of antibiotics for respiratory tract infections (RTI) and to optimise management of urinary tract infections (UTI).

SAPG has undertaken a qualitative evaluation of ScRAP to review feedback from education session facilitators and participants and make improvements to the original content. A quantitative evaluation has demonstrated the benefits of ScRAP on prescribing rates and this will be published in due course.

ScRAP 2 builds on the behaviour change methods utilised in the original ScRAP and uses a quality improvement approach to enable all practice staff to reflect and effect improvement together whilst also providing individual participants with a valuable Continuing Professional Development opportunity. The new resources focusing on UTI will provide an additional topic area for those who have already made good progress in managing RTI.

We commend the updated ScRAP programme to you and encourage GP Practices to engage with these education sessions to facilitate optimisation of antibiotic prescribing within your Board.



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Chairman of SAPG



Dr Catherine Calderwood
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Introduction

About ScRAP

ScRAP was originally launched in 2013 to support achievement of the national HEAT (Health improvement, Efficiency, Access to Treatment) target indicator to reduce antibiotic volumes in Primary Care. The original resource focused on reducing unnecessary prescribing for respiratory tract infection (RTI). Following successful evaluation, it was decided to build on this by adding content on urinary tract infection (UTI).

How ScRAP supports UK Antimicrobial Resistance (AMR) Strategy

ScRAP supports a key area of the Strategy: 'Improving professional education, training and public engagement to improve clinical practice and promote wider understanding of the need for more sustainable use of antibiotics'.

Where has it come from?

ScRAP is a collaborative development between the Scottish Antimicrobial Prescribing Group (SAPG) and NHS Education for Scotland (NES). Development has been undertaken by a multidisciplinary reference group with clinical and educational representation. Review and evaluation of the original ScRAP programme, evidence from the literature, and real-life general practice audit have been used to inform the design and focus of this update.

Who is this for?

ScRAP is designed to support quality improvement in antibiotic prescribing in primary care. The contents are designed to support GP practices to improve infection management, and reduce unnecessary prescribing. Elements will also be of use, however, to the wider primary care team e.g. non-medical prescriber groups; out of hours services; care homes.

What does it include?

ScRAP includes educational materials to support delivery of facilitated learning sessions.

The sessions are divided across four key topics:

1. Antimicrobial resistance and Healthcare Associated Infection (HAI)
2. Public understanding and expectations
3. Targeting prescribing for respiratory tract infections
4. Managing urinary tract infections (three parts)

Good practice examples, audit toolkits, and patient information resources are also signposted.

How can you use it?

Each session is designed to be 'bite-size' and last 30 to 60 minutes. You can choose to do the sessions independently or in combination depending on the time available and the groups learning needs. They can be done in any order, and are designed to be interactive and support improvement actions. They are 'off the shelf' and so delivery can be facilitated by any relevant healthcare professional.



Facilitating the ScRAP programme

2.1 Session format and delivery

Table 1 details the available sessions and corresponding aims and objectives. All sessions contain information and evidence to support discussion with the overall aim of identifying areas for improvement.

The sessions are designed to be ‘bite-sized’, lasting between 30 to 60 minutes. They can be undertaken independently or bundled together, in any order. Session duration will vary depending on the number of slides, size of the group, and degree of discussion. It is suggested that you may wish to plan **an hour** for each session with the expectation that you may finish earlier in some cases. This should allow time at the end of the session to discuss the next steps, and agree a practice quality improvement plan.

Evaluation of ScRAP 1 indicated that the sessions had a greater impact on practices who were higher prescribers and/or larger practices (top third list sizes/five GPs). There was also greater impact when delivered during the summer months (April to September) despite adjusting for seasonal variation. These factors may be worth considering when planning delivery.

Table 1. Session aims and objectives

	Title	Aim	Objectives
1	Antimicrobial Resistance (AMR) and Healthcare Associated Infection (HAI)	To ensure individual and societal resistance and risk are considered when making treatment decisions	Recognise how prescribing levels correlate with resistance (individual and societal) and HAI Describe current resistance patterns and HAI rates
2	Antibiotic Use – Public understanding and expectations	To support prescribers to understand patient expectations and how they can be managed, reducing unnecessary antibiotic consumption	Understand what the evidence tells us about patient understanding and expectations in relation to antibiotics Identify changes to practice that help reduce unnecessary consultations and antibiotic prescribing
3	Targeting prescribing – Respiratory tract infection (RTI)	To support prescribers to identify when antibiotics should be prescribed for RTI immediately, and when alternative approaches can be used	Understand the benefit versus risk of prescribing for common RTIs Use validated scoring systems to support prescribing decisions Identify strategies that can be used to reduce unnecessary prescribing

Table 1. Session aims and objectives (continued)

	Title	Aim	Objectives
4	UTI		
a	Uncomplicated female	To improve the management of uncomplicated lower UTI in non-pregnant females and support prescribers to target prescribing	Identify when urinalysis (dipstick/culture) is required to support diagnosis Identify when an antibiotic is required immediately and when alternative approaches can be used
b	Complicated (older people, catheter associated, male)	To improve the management of UTI in older people, catheter-associated and men, and support prescribers to target prescribing	Identify when urinalysis (dipstick/culture) is required to support diagnosis Identify presenting symptoms of UTI in these groups, and know when to consider differential diagnosis
c	Recurrent	To improve the management of recurrent UTI and reduce unnecessary acute and repeat (prophylaxis) antibiotic prescribing	Correctly identify and manage true recurrent UTI Identify when to initiate, review and stop prophylactic antibiotics

What do I need to deliver the session(s)?

- laptop and projector (slides are provided in Microsoft PowerPoint®)
- copies of the slides printed out as ‘notes’ for the facilitator
- copies of any handouts/tools as indicated in the session notes e.g. decision aids
- session 4a/b – Flip chart/A1 paper and post-it notes if undertaking UTI process mapping
- session 2 – Internet connectivity if playing the video in ‘Public Understanding and Expectations’ directly from the link

Tips

- using slides is preferable to talking to handouts. The former allows the facilitator to keep the discussion focused on the current content and avoids participants ‘jumping’ ahead (particularly important for the case discussion)
- copies of decision aids are better printed in colour and laminated to allow the participants to keep and reuse

2.2 Facilitator knowledge and understanding

Although not essential to enable delivery of the sessions, you and your participants may find the following self-directed learning useful to increase your clinical knowledge on the management of RTI and UTI. Completion of the modules provides an e-certificate to contribute to Continuing Professional Development (CPD).

Table 3. Suggested e-learning

Learning Need	Resource	Time to Complete
<u>Managing Acute Respiratory Infections</u>	RCGP e-learning module	2 hours
<u>Managing Urinary Tract Infections</u>	RCGP e-learning module	1.5 hours

Note that registration with RCGP is required to enable free access. Contact RCGP if difficulty accessing at e-learning@rcgp.org.uk

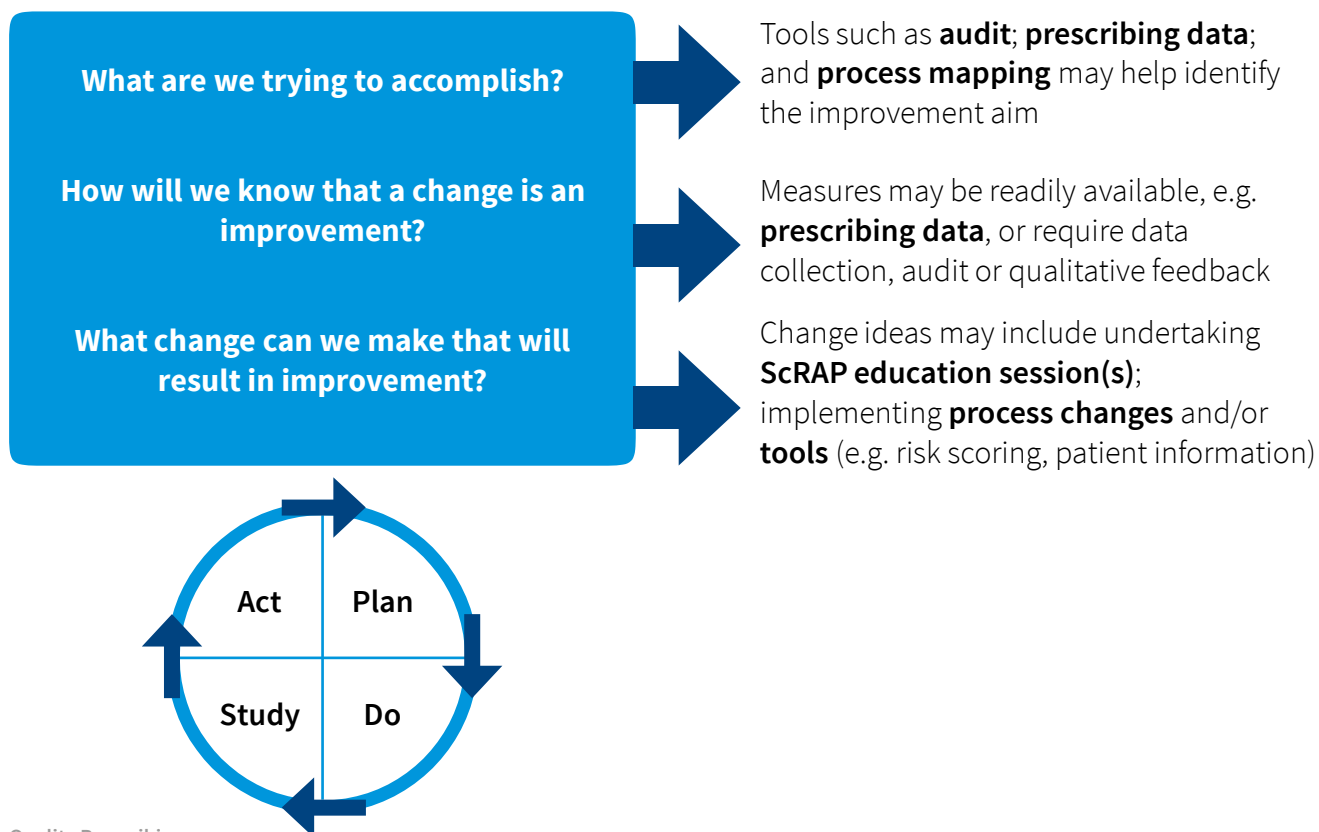
If further self-directed learning is required Public Health England’s (PHE) **TARGET toolkit** contains further information on what is available. This includes a series of seven **webinars** launched in 2016 which some participants may find useful.

For nurses, NES has produced an **antimicrobial stewardship workbook** to support learning on this topic and the care of patients with infections. The workbook can be undertaken in bite sized chunks, includes learning activities to be undertaken in practice and can provide outcomes and evidence for NMC revalidation and e-KSF.

2.3 ScRAP and quality improvement

The ‘model for improvement’ is widely used to deliver real-time change in health and social care settings. Various elements can be applied to improving infection management and reducing unnecessary antibiotic prescribing. Figure 1 illustrates the ‘model for improvement’ and how this aligns to the ScRAP journey.

Figure 1. Model for improvement and the ScRAP journey



2.3.1 Undertaking the ScRAP quality improvement journey

(a) Identifying the Improvement Aim (What are we trying to accomplish?)

There are a number of ways you may identify what it is you want to improve, including through discussion and feedback. Some practical methods in relation to infection management and antibiotic prescribing you may wish to consider are highlighted below.

Prescribing data

Existing data reports are hosted on the Prescribing Information System and are available for the nationally agreed prescribing indicators.

The current primary care quality indicator focuses on reducing total volume of antibiotics. This requires 50% of practices in a territorial Health Board to be at or below the Scottish lower quartile (items/1000 patients/day) or to have moved 'significantly' towards this figure.

In 2016/17 there were four National Therapeutic Prescribing Indicators/Associated Prescribing Measures (NTIs/APMs):

- i. Total antibiotic script items/1000 list size/day
- ii. Total 4C antibiotic script items/1000 list size/100 days
- iii. Number of patients prescribed recurrent antibiotics per 1000 list size (>4 items in 12 months)
- iv. Number of women 16 years of age or older dispensed a three-day course of acute UTI antibiotics (trimethoprim or nitrofurantoin) as a % of women 16 years of age or older dispensed acute UTI scripts

These measures are currently being reviewed by the **therapeutics branch** for 2017/18, with consideration of additional measures on 'UTI' antibiotics.

Tips

- data can be helpful for peer comparison to identify and reflect on how prescribers compare
- data can be helpful to measure change following implementation of improvement actions
- your local prescribing support team can help you find out what data is available in your area

Audit

The following audit tools are available from SAPG via the following link

http://www.scottishmedicines.org.uk/SAPG/GP_audit_tool:

- general antibiotic audit
- UTI audit

Tips

- auditing your performance against pre-determined criteria and standards can be a useful way to identify where improvements need to be made. Further audit cycles can then be used to determine the success of any changes implemented
- your local prescribing support team may have additional audit resources available

Process mapping

In the UTI sessions (4a and 4b), it is suggested you may wish to undertake process mapping

Tips

- process mapping allows everyone in the process to see what is happening at every step, helping to identify differences in approach and areas for improvement
- process mapping allows all of the team to contribute, improving self-identification and ownership of improvement actions
- using a large sheet of paper on a wall and post-its is useful to aid interaction and visualisation of the process map
- visit the [QIHub](#) for information and resources about process mapping and other quality improvement methods

(b) Using measures (How will we know that a change is an improvement?)

Measures are important in quality improvement to be able to track change and show you are making a difference. Choice of measure(s) will depend on the aim of the improvement, and usually include outcome and process measures. Prescribing measures (see 'Prescribing Data Reports') will often be relevant outcome measures where the aim is to reduce unnecessary prescribing. Many interventions will have a number of other things (e.g. process measures) that can be measured both to ascertain if having the desired impact and also any unintended consequences (balancing measures). Examples are given within the detailed session information below.

Tips

- visit the [QIHub](#) contains further information on choosing measures
- consider outcome and process measures that are practical to measure and define how often you will collect this data, and who will do this

Data collection and reporting

Regular measurement in quality improvement and visualisation of this data over time (e.g. via run charts) allows the staff involved to see change more rapidly compared to undertaking audit. It also allows early identification of whether the change is having the predicted impact, or whether you need to start the cycle over, or redefine the measures.

Tips

- ensure the frequency of data collection, reporting and review is regular and just enough to track improvements, and allow rapid spread
- visit the [QIHub](#) for tools to support data visualisation and Plan Do Study Act (PDSA) templates

(c) Change ideas (What change can we make that will result in an improvement?)

Those involved in a process are often best placed to identify what would make things better. The elements of ScRAP that support improvement actions are highlighted below. Further ideas are given in the detailed session information in section 3.

Facilitated education sessions

Choosing which session(s) to undertake will depend on a number of factors such as priority, interest, previous learning. Table 2 attempts to list some issues you may come across, and which sessions may be relevant to undertake.

Table 2. Potential target issues and suggested sessions to support improvement

Target Issue	Suggested Sessions
Antibiotic prescribing levels are higher than comparator practices which may be indicative of 'unnecessary' prescribing	<ol style="list-style-type: none"> 1. AMR & HAI 2. Public Understanding and Expectations 3. Targeting Prescribing – RTI 4a-c. UTI sessions
Failure to consider resistance patterns when making treatment decisions	<ol style="list-style-type: none"> 1. AMR & HAI 4a-c. UTI sessions
Low use of delayed/back up prescribing and self-management	<ol style="list-style-type: none"> 2. Public Understanding and Expectations 3. Targeting Prescribing – RTI 4a. Uncomplicated female UTI
High levels of telephone prescribing	<ol style="list-style-type: none"> 1. AMR & HAI 2. Public Understanding and Expectations
Reports of patient pressure to prescribe	<ol style="list-style-type: none"> 2. Public Understanding and Expectations 3. Targeting Prescribing – RTI
High levels of prescribing for low risk patients/self-limiting illness	<ol style="list-style-type: none"> 3. Targeting Prescribing – RTI 4a. Uncomplicated female UTI
Urinalysis is not being utilised in the correct way to support diagnosis and management UTI	4a/b. UTI sessions (depending on target group)
Treatment decisions are not supported by presenting symptoms or there is no adequate symptom information available to confirm diagnosis	4a/b. UTI sessions (depending on target group)
Prophylaxis is not being used in line with guidance in relation initiation, review and discontinuation	4c. Recurrent UTI
Recurrent UTI are not being diagnosed correctly, e.g. UTIs not confirmed microbiologically/lack of consideration of differential diagnosis/appropriate investigation	4c. Recurrent UTI

Tips

- ask participants which sessions they feel would be of most benefit, using information from pre-work (prescribing data, audit, process mapping) as necessary to influence choice
- allow up to an hour for each session, e.g. over lunchtime

Process changes

Changes to the process of infection management will depend on the issues identified through facilitated discussion and/or audit. These may be individual or group actions. It is important to try and get the group to identify the actions and take ownership by committing to an improvement plan. The ScRAP sessions are designed to support this process through reflection on, and discussion of, the information provided.

Tips

- appendix 2 of [GMS Quality Improvement Guidance 2016](#) contains an example of a 'Practice Specific Prescribing Action Plan'

Good practice tools and resources

It is useful to share learning around improving infection management and reducing unnecessary antibiotics.

References/signposting to improvement projects/resources can be found on the ScRAP NES webpage.

Tips

- have a look at the examples of improvement projects before undertaking the sessions
- register for free with [Scottish UTI Network \(SUTIN\) on the Knowledge Hub](#) to connect with others, and have a look at their UTI resource compendium
- consider discussing and sharing your work with others through SUTIN NSS.ScottishUTINetwork@nhs.net and/or NES (see email contact on ScRAP webpage)



ScRAP sessions in detail

3.1 Session 1 – Antimicrobial resistance (AMR) & healthcare associated infection (HAI)

3.1.1 Aims and objectives

To ensure individual and societal resistance and risk are considered when making treatment decisions

Recognise how prescribing levels correlate with resistance and healthcare associated infection

Describe current resistance patterns and healthcare associated infection rates

Improve – Identify areas for improvement and formulate an action plan

3.1.2 Content outline (30 slides)

Pre-session	<ul style="list-style-type: none">• Obtain practice prescribing data to compare antibiotic volumes
Current situation	<ul style="list-style-type: none">• Where are we now? (Questions on antibiotic use and resistance)• Current antibiotic use in Primary Care (Scottish data)• How do you compare? (Discussion on Practice data)• Facts on AMR
Link between prescribing, resistance and HAI	<ul style="list-style-type: none">• Antibiotic volume correlation with resistance• Resistance at practice population level and patient level• Scottish data on resistance and HAI• Data linkage – Infection Intelligence Platform (C. Difficile; urinary resistance)• Considering resistance and risk when prescribing• Taking action
Next steps	<ul style="list-style-type: none">• Identify improvement actions• Formulate an action plan (see section 2.3)

3.1.3 Handouts/Resources required

Antibiotic prescribing data

3.1.4 Improvement ideas and measures

It is anticipated that participants will identify improvement actions as a result of the session. Some examples are given below in table 3.

Table 3. Improvement ideas and measures – Resistance and HAI

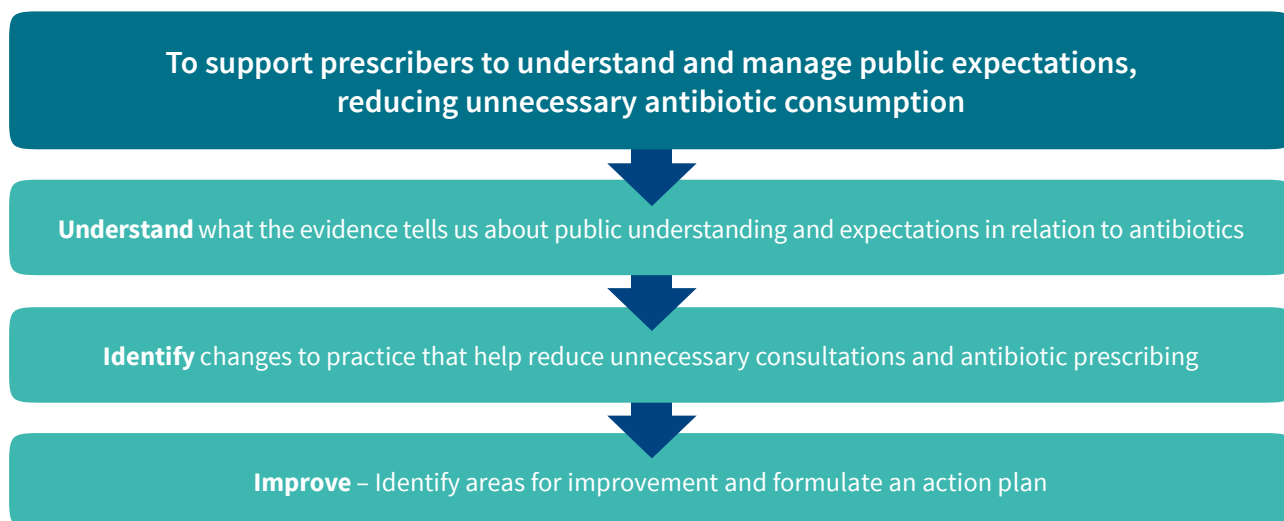
What changes can we make?	How will we know the change is an improvement?	Resources
Avoid prescribing unnecessary antibiotics: Consider self-management/delayed prescribing in suitable patients	Reduction in total antibiotic volume (DDDs/1000 patients/day) PRISMS data Increased use of delayed prescribing (audit to confirm)	TARGET managing my infection leaflet When Should I Worry leaflet for parents/carers
Consider Resistance and Sensitivity Patterns when making antibiotic choice	Less repeat return appointments for treatment failure	SAPG Audit tools – general antibiotic use/UTI

3.1.5 Supporting information and references

See Appendix 1

3.2 Session 2 – Antibiotic use: Public understanding and expectations

3.2.1 Aims and objectives



3.2.2 Content outline (17 slides)

Pre-session	<ul style="list-style-type: none">• Obtain practice prescribing data to compare antibiotic volumes
Prescribers perspective	<ul style="list-style-type: none">• What is your experience? (Reasons for unnecessary prescribing)• How do you compare? (Discussion on Practice data)• What do you think people know? (Questions for discussion)
Public understanding and expectations – evidence	<ul style="list-style-type: none">• What do people think about resistance?• What do people do when unwell?• Expectations: the reality• Patient satisfaction• Parents/carers (Video – internet connection required)• Patient centred consultation/shared decision making• Patient Information Resources
Next steps	<ul style="list-style-type: none">• Identify improvement actions• Formulate an action plan (see section 2.3)

3.2.3 Handouts/Resources required

Antibiotic prescribing data

Examples of patient information leaflets:

[When Should I Worry](#) (supplies can be ordered from in bundles of 50 from [RCGP bookshop](#))

[Treating your infection leaflet](#)

3.2.4 Improvement ideas and measures

It is anticipated that participants will identify improvement actions as a result of the session. Some examples are given below in table 4.

Table 4. Improvement ideas and measures – Public understanding and expectations

What changes can we make?	How will we know the change is an improvement?	Resources
Change approach to consultation (explore ideas concerns and expectations; educate/use leaflets; shared decisions)	Reduction in total antibiotic volume (DDDs/1000 patients/day) PRISMS data	TARGET managing my infection leaflet When Should I Worry leaflet for parents/carers
Consider self-management/delayed prescribing in suitable patients	Reduction in total antibiotic volume (DDDs/1000 patients/day) PRISMS data Increased use of delayed prescribing (audit to confirm)	Leaflets as above SAPG Audit tools – general antibiotic use/UTI

3.2.5 Supporting information and references

See Appendix 1

3.3 Session 3 – Targeting prescribing for respiratory tract infection

3.3.1 Aims and Objectives

To support prescribers to understand when antibiotics should be prescribed for RTI, and when alternative approaches can be used

Understand the benefit versus risk of prescribing for common RTIs

Use validated scoring systems to support prescribing decisions

Identify strategies that can be used to reduce unnecessary prescribing

Improve – Identify areas for improvement and formulate an action plan

3.3.2 Content outline (41 slides)

Pre-session	<ul style="list-style-type: none">• Obtain practice prescribing data to compare antibiotic volumes
The case for achieving further reductions in antibiotic prescribing	<ul style="list-style-type: none">• Unnecessary use in RTI (Questions for discussion)• How do you compare? (Discussion on Practice data)• Consequences of 'just in case' prescribing• Is it safe to reduce prescribing?
Part 1a – How do I decide when to prescribe antibiotics for upper RTI?	<ul style="list-style-type: none">• Acute sore throat – when might antibiotics be required (discussion questions); risk in perspective; risk scoring (FeverPAIN)• Acute Rhinosinusitis – when might antibiotics be required (discussion questions)• Acute Otitis Media – when might antibiotics be required (discussion questions)
Part 1b – How do I decide when to prescribe antibiotics for lower RTI?	<ul style="list-style-type: none">• Acute cough – when might antibiotics be required (discussion questions); the evidence against; risk scoring in children (STARWAVE)• Infection prevention• Summary self-limiting RTI• When to prescribe• Risk benefit
Part 2 – Strategies to reduce unnecessary antibiotic prescribing	<ul style="list-style-type: none">• Delayed prescribing• Patient information resources• CRP testing• Strategies in practice
Next steps	<ul style="list-style-type: none">• Identify improvement actions• Formulate an action plan (see section 2.3)

3.3.3 Handouts/Resources required

Antibiotic Prescribing Data

Examples of patient information leaflets:

[When Should I Worry](#) (supplies can be ordered from in bundles of 50 from [RCGP bookshop](#))

[Treating your infection leaflet](#)

3.3.4 Improvement ideas and measures

It is anticipated that participants will identify improvement actions as a result of the session. Some examples are given below in table 5.

Table 5. Improvement ideas and measures – Targeting prescribing for RTI

What changes can we make?	How will we know the change is an improvement?	Resources
Change approach to consultation (explore ideas concerns and expectations; educate/use leaflets; shared decisions)	Reduction in total antibiotic volume (DDDs/1000 patients/day) PRISMS data	TARGET managing my infection leaflet When Should I Worry leaflet for parents/carers
Consider self-management/delayed prescribing in suitable patients	Reduction in total antibiotic volume (DDDs/1000 patients/day) PRISMS data Increased use of delayed prescribing (audit to confirm)	Leaflets as above SAPG Audit tools – general antibiotic use/UTI
Use scoring in practice, e.g. feverPAIN	Reduction in total antibiotic volume (DDDs/1000 patients/day) PRISMS data Reduction in number of consultations for RTI	FeverPAIN calculator Create GP system template
Improve symptom recording to reduce unnecessary prescribing	Audit symptom recording against desired standard (if symptom recording adequate look at whether antibiotic indicated)	Create GP system template SAPG Audit tools – general antibiotic use

3.3.5 Supporting information and references

[See Appendix 1](#)

3.4 Session 4a – Uncomplicated female UTI

3.4.1 Aim and objectives

To improve the management of uncomplicated lower UTI in non-pregnant females and support prescribers to target prescribing

Diagnose – Identify when urinalysis (dipstick/culture) is required to support diagnosis

Target – Identify when an antibiotic is required immediately and when alternative approaches can be used

Improve – Identify areas for improvement and formulate an action plan

3.4.2 Session outline (24 slides)

Pre-session (optional)

- What currently happens?– Process Mapping or Audit (See section 2.3)

Part 1 – Urinalysis and Treatment Decisions

- Case discussion using HPA/BIA Diagnosis of UTI algorithm (**handout**)
- When to dipstick and when not to
- Good history taking
- Which antibiotic?
- Duration of treatment – is 3 days enough?
- Points to consider
- What could we do differently?

Part 2 – Alternative Treatment Strategies

- Are antibiotics always required?
- Alternatives to antibiotics
- Evidence for delayed prescribing and symptomatic management
- Improving patient understanding
- What could we do differently?

Next Steps

- Identify improvement actions
- Formulate an action plan (see section 2.3)

3.4.3 Handouts/Resources required

HPA/BIA Diagnosis of UTI algorithm (print page 1-2 double sided, laminated and in colour if possible so they can keep and use again)

TARGET Managing you infection leaflet (UTI)

3.4.4 Improvement ideas and measures

It is anticipated that participants will identify improvement actions as a result of the session. Some examples are given below in table 6.

Table 6. Improvement ideas and measures – Uncomplicated UTI

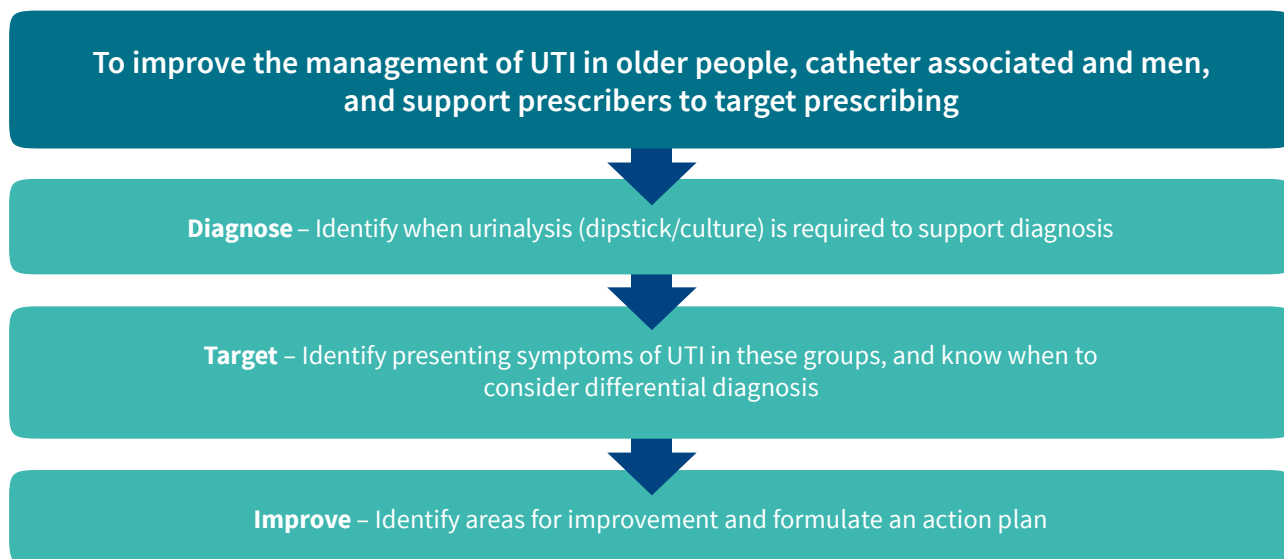
What changes can we make?	How will we know the change is an improvement?	Resources
Consider self-management/delayed prescribing in suitable patients	Reduction in consultations for UTI Reduction in total antibiotic volume (items/1000 patients/day) PRISMS data	TARGET Managing UTI Patient Leaflet
Review use of testing/audit management of UTI against PHE/BIA Algorithm	Audit to determine the proportion in line with guidance for: <ul style="list-style-type: none"> • Dipstick testing • Urine cultures • Drug choice, dose, frequency and duration • Antibiotic required 	SAPG Audit tools – UTI
Increase the % of adult females patients receiving three-day trimethoprim/nitrofurantoin	Increase proportion receiving three days Reduction in total antibiotic volume (DDDs/1000 patients/day) PRISMS data	Prescribing decision aid software (board specific) <ul style="list-style-type: none"> • E-formulary • Synonyms • Scriptswitch (message)
Improve symptom recording to reduce unnecessary prescribing	Audit symptom recording against desired standard (if symptom recording adequate look at whether antibiotic indicated)	Create GP system template
Review use and content practice questionnaire (if applicable) to ensure in line with guidance	Audit symptom recording and diagnosis	There is currently no validated questionnaire available for assessment of UTI. Appropriate consultation by a healthcare professional is encouraged. TARGET Managing UTI Patient Leaflet can be used to support prescriber/patient discussion on symptoms and management

3.4.5 Supporting information and references

[See Appendix 1](#)

3.5 Session 4b – Complicated UTI: older people, catheter associated, men

3.5.1 Aim and objectives



3.5.2 Session Outline (13 slides)

Pre-session (optional)	<ul style="list-style-type: none">• What currently happens?• Process Mapping or Audit (see section 2.3)
Older people, catheters, men	<ul style="list-style-type: none">• Case discussion (older people) using SAPG Decision Aid Diagnosis and Management Suspected UTI in Older People (handout)• Not dipsticking/asymptomatic bacteriuria• Catheter associated• What about men?• Which antibiotic?• Points to consider• What could we do differently?
Next steps	<ul style="list-style-type: none">• Identify improvement actions• Formulate an action plan (see section 2.3)

3.5.3 Handouts/Resources Required

SAPG Decision Aid Diagnosis and Management Suspected UTI in Older People (print double sided, laminated and in colour if possible so they can keep and use again).

See also good practice examples on NES ScRAP webpage.

3.5.4 Improvement ideas and Measures

It is anticipated that participants will identify improvement actions as a result of the session. Some examples are given below in table 7.

Table 7. Improvement Ideas and Measures – Complicated UTI

What changes can we make?	How will we know the change is an improvement?	Resources
Introduce symptom proforma to improve UTI management, e.g. in care home patients	Reduction in the proportion of care home patients receiving antibiotics for UTI Improvement in symptom recording and accurate diagnosis when audited	See NHS Grampian good practice example for care homes (NES ScRAP webpage) Create GP template
Review use of testing/ audit management of UTI against PHE/BIA Algorithm	Audit to determine the proportion in line with guidance for: <ul style="list-style-type: none"> • Dipstick testing • Urine cultures • Drug choice, dose, frequency and duration • Antibiotic required 	SAPG Audit tools – UTI

3.5.5 Supporting information and references

See Appendix 1

3.6. Session 4c – Recurrent UTI

3.6.1 Aim and objectives

To improve the management of recurrent UTI and reduce unnecessary acute and repeat (prophylaxis) antibiotic prescribing

Diagnose – Correctly identify and manage true recurrent UTI

Target – Identify when to initiate, review and stop prophylactic antibiotics

Improve – Identify areas for improvement and formulate an action plan

3.6.2 Session outline (15 slides)

Pre-session (optional)

- What currently happens?
- Process mapping or audit (See section 2.3)

Recurrent UTI

- Case discussion using HPA/BIA diagnosis of UTI algorithm (**handout**)
- Recurrent versus persistent
- Risk Factors for recurrent UTI
- Prevention
- Management pathway
- Which antibiotic
- Antibiotic use in recurrent UTI
- Patient expectations
- What could we do differently?

Next Steps

- Identify improvement actions
- Formulate an action plan (see section 2.3)

3.6.3 Handouts/Resources required

HPA/BIA Diagnosis of UTI algorithm (print page 1-2 double sided, laminated and in colour if possible so they can keep and use again)

TARGET Managing you infection leaflet (UTI)

3.6.4 Improvement ideas and measures

It is anticipated that participants will identify improvement actions as a result of the session. Some examples are given below in table 8.

Table 8. Improvement ideas and measures – Recurrent UTI

What changes can we make?	How will we know the change is an improvement?	Resources
Review patients on prophylactic antibiotics	Reduction in total number patients receiving (and so antibiotic volume (items/1000 patients/day) PRISMS data) Reduction in number of patients receiving >4 UTI antibiotics	SAPG Audit tools – UTI
Identify patients with >4 prescriptions in 12 months for UTI antibiotics and review UTI management	Reduction in number of patients receiving >4 UTI antibiotics	SAPG Audit tools – UTI
Educate patients on preventative measures/utilise patient leaflet	Reduction in consultations for UTI Reduction in total antibiotic volume (items/1000 patients/day) PRISMS data	TARGET Managing UTI Patient Leaflet http://patient.info/pdf/4437.pdf

3.6.5 Supporting information and references

[See Appendix 1](#)



After the session – CPD certification and evaluation

4.1 CPD certification

It is useful for participants to receive a certificate of participation to count towards their continuing professional development. A sample certificate is provided in [Appendix 2a](#), and commonly utilised GP credit log in [Appendix 2b](#).

4.2 Evaluation

To allow us to continue to assess the impact of ScRAP, and get feedback from you, there are two e-surveys for completion. Both take around five minutes to complete.

- facilitators survey
- participant survey

Tips

- aim to get these completed as soon after delivery as possible
- the links to these surveys can be found on the NES ScRAP webpage

Appendix 1 – Session supporting information and references

Session 1 – Resistance and HAI

Author	Reference	What it tells us	Link
NSS (HPS, SAPG, SMC, ISD)	Scottish Antimicrobial Use and Resistance in Humans 2015	Published annually. Information on primary and secondary care antimicrobial prescribing volumes, and resistance patterns and associated trends	http://www.isdscotland.org/Health-Topics/Prescribing-and-Medicines/Publications/2016-08-30/2016-08-30-SAPG-2015-Report.pdf
Fleming, K.E. et al.	Prevalence of Inappropriate Antibiotic Prescriptions Among US Ambulatory Care Visits, 2010-2011 JAMA. 2016;315(17):1864-1873	At least 30% of antibiotics prescribed may be unnecessary	http://jamanetwork.com/journals/jama/article-abstract/2518263
O'Neill, J.	Tackling Drug Resistance Infections Globally: Final Report and Recommendations May 2016	Outlines the concerns and recommends actions to tackle AMR	https://amr-review.org/Publications
Public Health England	Behavioural Change and Antibiotic Prescribing in Healthcare Settings: literature review and behavioural analysis (February 2015)	A comprehensive summary of the literature relating to public and prescriber behaviours in relation to antibiotic use. Includes information on specific settings and groups	https://www.gov.uk/government/publications/antibiotic-prescribing-and-behaviour-change-in-healthcare-settings
World Health Organisation	Antimicrobial Resistance Factsheet (September 2016 update)	Outlines what AMRs, why it is a global concern and the present situation in relation to resistant infections	http://www.who.int/mediacentre/factsheets/fs194/en/
Goossens, H. et al. and ESAC Project Group	Outpatient antibiotic use in Europe and association with resistance: a cross-national database study Lancet. 2005 Feb 12-18;365(9459):579-87	Demonstrates there is a high correlation between antibiotic use and resistance by looking at data from different countries	https://www.ncbi.nlm.nih.gov/pubmed/15708101/
Butler, C.C. et al.	Containing antibiotic resistance: decreased antibiotic-resistant coliform urinary tract infections with reduction in antibiotic prescribing by general practices. Br J Gen Pract 2007; 57, 785	Demonstrates the impact of reducing antibiotic prescribing on reducing resistant isolates at the level of a GP practice	https://www.ncbi.nlm.nih.gov/pubmed/17925135

Session 1 – Resistance and HAI (continued)

Author	Reference	What it tells us	Link
Costelloe, et al.	Effect of antibiotic prescribing in primary care on antimicrobial resistance in individual patients: systematic review and meta-analysis. <i>BMJ</i> 2010;340 c2090	Demonstrates the impact of antibiotic resistance at the individual patient level. Shows that it persists for 12 months but is greatest in the first month	http://www.bmj.com/content/340/bmj.c2096
NSS and HPS	Healthcare Associated Infection Annual Report	Published annually. Contains data on the incidence of healthcare associated infection	http://www.hps.scot.nhs.uk/resourcedocument.aspx?id=4089
NSS (infection intelligence platform)	Risk factors associated with antibiotic resistance in community urinary isolates	There is a clear dose response relationship between antibiotic use and resistance using Scottish data	http://www.isdscotland.org/Health-Topics/Health-and-Social-Community-Care/Infection-Intelligence-Platform/docs/risk_assoc_antibiotic_resistance_in_urinary_isolates.PDF
NSS (infection intelligence platform)	Association between antimicrobials and Community-Associated Clostridium Difficile Infection	Cases (versus controls) more likely to be care home residents; on PPI/H2 antagonist; more comorbidity and more medicines (volume and types); have been exposed to any antibiotic; a 4C; or a quinolone	http://www.isdscotland.org/Health-Topics/Health-and-Social-Community-Care/Infection-Intelligence-Platform/Communications/docs/2015-05-21-IIP-Study-4.pdf
Lawes, T. et al.	Effect of a national 4C antibiotic stewardship intervention on the clinical and molecular epidemiology of Clostridium difficile infections in a region of Scotland: a non-linear time-series analysis. <i>Lancet Infect Dis</i> 2016	Looks at the impact of reducing 4C prescribing on reducing rates of Clostridium difficile	http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(16)30397-8/abstract
Vellinga, A. Cormican, M. Hanahoe, B. Murphy, A.W.	Predictive value of antimicrobial susceptibility from previous urinary tract infection in the treatment of re-infection <i>Br J Gen Pract.</i> 2010 Jul;60(576):511-3	Looks at the likelihood of antimicrobial sensitivity based on previous samples. Demonstrates the need to consider up to 12 months back of sensitivities when making antibiotic choice	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2894379/

Session 1 – Resistance and HAI (continued)

Dept of Health	UK 5 Year Antimicrobial Resistance (AMR) Strategy 2013-15	Collaborative Strategy across human and animal health outlining UK plan to tackle the threat of AMR	https://www.gov.uk/government/publications/uk-5-year-antimicrobial-resistance-strategy-2013-to-2018
Author	Reference	What it tells us	Link
Scottish Government	Scottish Management of Antimicrobial Resistance Action Plan 2014-18 (ScotMARAP2)	Outlines Scottish response within context of the UK strategy to tackling AMR across health and care settings	http://www.gov.scot/Resource/0045/00456736.pdf
Public Health England and Veterinary Medicines Directorate	UK One Health Report – Joint Report on human and animal antibiotic use, sales and resistance 2013	Brings together the most recently available UK data on antibiotic resistance in key bacteria that are common to animals and humans. It also includes details on the amount of antibiotics sold for animal health and welfare and antibiotics prescribed to humans	https://www.gov.uk/government/publications/uk-one-health-report-antibiotics-use-in-humans-and-animals

Session 2 – Public Understanding and Expectations

Author	Reference	What it tells us	Link
Public Health England	Behaviour change and antibiotic prescribing in healthcare settings: Literature review and behavioural analysis 2015	Useful summary of the evidence base for prescriber and public thoughts and behaviours in relation to antibiotic use. Covers different healthcare settings. Makes recommendations on changing behaviours to improve prudent antibiotic use	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/405031/Behaviour_Change_for_Antibiotic_Prescribing_-_FINAL.pdf
NESTA	NESTA survey 2014	UK poll of 1000 GPs and 1000 patients on thoughts and behaviours around antibiotic prescribing and use	http://www.nesta.org.uk/news/benefit-doubt-basis-prescribing-antibiotics-finds-longitude-survey
Linder, J.A. et al.	Time of Day and Decision to Prescribe Antibiotics JAMA Intern Med. 2014 December; 174(12):2029-2031	Demonstrated that likelihood of prescribing an antibiotic increased the longer a GP had been consulting that day (decision fatigue)	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4648561/pdf/nihms729552.pdf
NSS (HPS, SAPG, SMC, ISD)	Scottish Antimicrobial Use and Resistance in Humans 2015	Published annually. Information on primary and secondary care antimicrobial prescribing volumes, and resistance patterns and associated trends	http://www.isdscotland.org/Health-Topics/Prescribing-and-Medicines/Publications/2016-08-30/2016-08-30-SAPG-2015-Report.pdf

Session 2 – Public Understanding and Expectations (continued)

Author	Reference	What it tells us	Link
Monnet, D.L. et al.	Comment on: A systematic review of the public's knowledge and beliefs about antibiotic resistance. J Antimicrob Chemother published May 26, 2016	Interprets the results from Eurobarometer surveys on public's knowledge of antibiotics and resistance	http://jac.oxfordjournals.org/content/early/2016/05/25/jac.dkw141.full.pdf
European Commission	Eurobarometer – Antibiotic Resistance – Summary. November 2013	Survey by European Commission to monitor levels of public use & knowledge about antibiotics. Captures information on use, knowledge, and impact of public awareness campaigns	http://ec.europa.eu/public_opinion/archives/ebs/ebs_407_sum_en.pdf
McCulloch, A.R. et al.	A systematic review of the public's knowledge and beliefs about antibiotic resistance. J Antimicrob Chemother 2016; 71: 27-33	Looks at public knowledge and beliefs about antibiotic resistance and concludes that the public have an incomplete knowledge, and often don't attribute it to them individually	http://jac.oxfordjournals.org/content/early/2015/10/10/jac.dkv310.full
McNulty. et al.	Expectations for consultations and antibiotics for respiratory tract infection in primary care: the RTI clinical iceberg. British Journal of General Practice, 2013 e429	Face to face survey of 1767 in England in 2011. Looked at what people did when unwell with an infection in relation to % going to GP etc.	http://bjgp.org/content/63/612/e429
Duijn, V. et al.	Illness behaviour and antibiotic prescription in patients with respiratory tract symptoms. Br J Gen Pract. 2007 July 1; 57(540): 561–568	Dutch study questionnaire 7057 adults. Concluded that careful clinical examination contributed to patient satisfaction	https://www.ncbi.nlm.nih.gov/pubmed/17727749
Bristol University TARGET programme	What parents want from a GP consultation for their child's cough or respiratory tract infection	Four minute animation based on research done on Bristol University on what parents actually want from a consultation (versus what the prescriber thinks they want)	http://www.bristol.ac.uk/primaryhealthcare/researchthemes/target/resources/
Matthys. et al.	Patients' ideas, concerns, and expectations (ICE) in general practice: impact on prescribing Br J Gen Pract. 2009 January 1; 59(558): 29–36	The data suggest that exploring ICE components may lead to fewer new medication prescriptions	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2605528/

Session 2 – Public Understanding and Expectations (continued)

Author	Reference	What it tells us	Link
Coxeter, P. et al.	Interventions to facilitate shared decision making to address antibiotic use for acute respiratory infections in primary care. Cochrane Database of Systematic Reviews. November 2015	Interventions to support shared decision making reduce antibiotic use, without increasing consultations, or reducing patient satisfaction	http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010907.pub2/abstract;jsessionid=C36A8B85571B085D0E6F4C2A3BD5718F.f03t04
Patient information Resources			
Cardiff University	Leaflet – ‘When Should I Worry’	Evidence-based booklet. Provides information for parents about the management of respiratory tract infections (coughs, colds, sore throats, and ear aches) in children, and has been designed to be used in primary care consultations	http://www.whenshouldiworry.com
Public Health England/RCGP	Leaflet – ‘Treating Your Infection’	A leaflet to support discussion with a patient about their self-limiting illness, and give safety-netting information for them to take away. Available 17 languages	http://www.rcgp.org.uk/clinical-and-research/toolkits/target-antibiotics-toolkit/patient-information-leaflets.aspx
Public Health England	e-learning platform – ‘e-bug’	e-bug is a free educational resource for classroom and home use and makes learning about micro-organisms, the spread, prevention and treatment of infection fun and accessible for all students	http://www.e-bug.eu/
Health Education England	Animation – Antimicrobial resistance	Short animation (1:49) which explains antimicrobial resistance for the public	https://hee.nhs.uk/our-work/hospitals-primary-community-care/prevention-public-health-wellbeing/antimicrobial-resistance
Scottish Antimicrobial Prescribing Group	European Antibiotic Awareness Day (EAAD) Materials (various)	Updated each year in advance of 18th November with materials to support public awareness campaigns for EAAD	https://www.scottishmedicines.org.uk/SAPG/European_Antibiotic_Awareness_Day/European_Antibiotic_Awareness_Day

Session 3 – Targeting Prescribing for Respiratory Tract Infection

Author	Reference	What it tells us	Link
Verheij, Theo. J.M.	The antibiotic revolution should be more focused. Br J Gen Pract. 2009 Oct 1; 59(567): 716–717	Highlights that the aim is not to prescribe as few antibiotics as possible but to target them at the patients who need them, and reassure and educate those who don't.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2751913/
Fleming, K.E. et al.	Prevalence of Inappropriate Antibiotic Prescriptions Among US Ambulatory Care Visits, 2010-2011 JAMA. 2016; 315(17): 1864-1873	At least 30% of antibiotics prescribed may be unnecessary	http://jamanetwork.com/journals/jama/article-abstract/2518263
NESTA	NESTA survey 2014	UK poll of 1000 GPs and 1000 patients on thoughts and behaviours around antibiotic prescribing and use	http://www.nesta.org.uk/news/benefit-doubt-basis-prescribing-antibiotics-finds-longitude-survey
NSS (HPS, SAPG, SMC, ISD)	Scottish Antimicrobial Use and Resistance in Humans 2015	Published annually. Information on primary and secondary care antimicrobial prescribing volumes, and resistance patterns and associated trends	http://www.isdscotland.org/Health-Topics/Prescribing-and-Medicines/Publications/2016-08-30/2016-08-30-SAPG-2015-Report.pdf
Little, P. et al.	Reattendance and complications in a randomised trial of prescribing strategies for sore throat: the medicalising effect of prescribing antibiotics BMJ 1997; 315 350-352	Current and previous prescribing for sore throats increases re-attendance	https://www.ncbi.nlm.nih.gov/pubmed/9270458
Little, P. et al.	Delayed antibiotic prescribing strategies for respiratory tract infections in primary care: pragmatic, factorial, randomised controlled trial BMJ 2014; 348	Strategies of no/delayed prescribing resulted in 40% fewer antibiotics	http://www.bmj.com/content/348/bmj.g1606
Venekamp, R.P. et al.	Antibiotics for acute otitis media in children. Cochrane database of systematic reviews 2015	Systematic review of the evidence for antibiotics in acute otitis media in children	http://www.cochrane.org/CD000219/ARI_antibiotics-for-acute-middle-ear-infection-acute-otitis-media-in-children
Lemiengre, M.B. et al.	Antibiotics for clinically diagnosed acute rhinosinusitis in adults. Cochrane database of systematic reviews. 2012	Systematic review of the evidence for antibiotics in rhinosinusitis	http://www.cochrane.org/CD006089/antibiotics-for-clinically-diagnosed-acute-rhinosinusitis-in-adults

Session 3 – Targeting Prescribing for Respiratory Tract Infection (continued)

Author	Reference	What it tells us	Link
Svanström. et al.	Use of clarithromycin and roxithromycin and risk of cardiac death: cohort study BMJ 2014; 349	Significantly increased risk of death with clarithromycin	http://www.bmj.com/content/349/bmj.g4930
NHS National Services Scotland	Measuring Potential Unintended Consequences of Interventions to Reduce Primary Care Antibiotic Use (published online 2016)	Data linkage through the infection intelligence platform (IIP) to look at how admission rates for complicated respiratory tract infections correlated with reducing prescribing volumes in primary care	http://www.isdscotland.org/Health-Topics/Health-and-Social-Community-Care/Infection-Intelligence-Platform/Communications/docs/Study-7b-Poster.pdf
Molstad, S. et al.	Sustained reduction of antibiotic use and low bacterial resistance: 10-year follow-up of the Swedish Strama programme. Lancet 2008; 8 (2): 125-132	Demonstrates through Swedish surveillance data that rates of acute mastoiditis, rhinosinusitis, and quinsy (peritonsillar abscess) were stable or declining, even when the volumes of antibiotics were reduced	http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(08)70017-3/abstract
Spinks. et al.	Antibiotics for sore throat. Cochrane database for systematic review 2013	Systematic review of the evidence for antibiotics in sore throat	http://www.cochrane.org/CD000023/ARI_antibiotics-people-sore-throats
Peterson. et al.	Protective Effects of antibiotics. BMJ 2007; 335: 982-984	Antibiotics are not justified to reduce the risk of serious complications for upper respiratory tract infection, sore throat, or otitis media. Antibiotics reduce the risk of pneumonia after chest infection, particularly in elderly	http://www.bmj.com/content/335/7627/982.long
Centor. et al.	The diagnosis of Strep throat in adults in the emergency room. Med Decision Making 1981; 1: 239-46	Introduces the CENTOR scoring tool as a way of risk stratifying patients presenting with sore throat	https://www.ncbi.nlm.nih.gov/pubmed/6763125
Howie. et al.	Antibiotics, sore throat and rheumatic fever. BJGP 1985; 35: 223-224	The risk of developing rheumatic fever after strep throat (regardless of whether given antibiotic) is low (probably in the order of 1:30,000) and there is no evidence that prescribing antibiotics for prodromal sore throats confers benefit	http://bjgp.org/content/35/274/223

Session 3 – Targeting Prescribing for Respiratory Tract Infection (continued)

Author	Reference	What it tells us	Link
Taylor. et al.	Antibiotics, sore throat and acute nephritis. BJGP 1983; 33: 783-786	States that the incidence of acute post streptococcal glomerulonephritis is low – and usually associated with favourable outcome	http://bjgp.org/content/bjgp/33/257/783.full.pdf
Little, P. et al.	Clinical score and rapid antigen detection test to guide antibiotic use for sore throats: randomised controlled trial of PRISM (primary care streptococcal management) BMJ 2013; 347: f5806	Outlines the feverPAIN score to assess likelihood of streptococcal infection. Resulted in 29% reduction in antibiotic use	http://www.bmj.com/content/347/bmj.f5806
Cohen, J.F. et al.	Efficacy and safety of rapid tests to guide antibiotic prescriptions for sore throat Cochrane database for systematic reviews Nov 2016	This is a protocol for the systematic review which was still to be undertaken at the time of writing	http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD012431/full
Smith, S.M. et al.	Antibiotic treatment for people with a clinical diagnosis of acute bronchitis Cochrane database for systematic reviews 2014 (see also 2006 issue 4 – Fahey et al.)	Outlines the evidence for antibiotic use in acute bronchitis Antibiotics reduce symptoms by less than one day in an illness lasting several weeks	http://www.cochrane.org/CD000245/ARI_antibiotic-treatment-for-people-with-a-clinical-diagnosis-of-acute-bronchitis
Llor, C. et al.	Efficacy of anti-inflammatory or antibiotic treatment in patients with non-complicated acute bronchitis and discoloured sputum: randomized placebo controlled trial BMJ 2013; 347: F5762	Prescription of an antibiotic (co-amoxiclav) did not make a statistically significant difference to cough duration, with persistent cough in 40% at 15 days regardless of treatment	http://www.bmj.com/content/347/bmj.f5762
Little, P. et al.	Amoxicillin for acute lower RTI in primary care: 12 country placebo controlled RCT. Lancet Inf Dis 2013; 13: 123-29	Where there was no suspicion of pneumonia, amoxicillin provided little benefit for acute lower RTI in primary care both overall and in patients >60 years, and caused slight harm	http://www.thelancet.com/journals/lancetid/article/PIIS1473-3099(12)70300-6/abstract
Meropol, S.B. et al.	Risks and Benefits Associated With Antibiotic Use for Acute Respiratory Infections: A Cohort Study. Ann Fam Med March/April 2013 11: 165-172	The NNT to prevent one hospitalization for pneumonia was 12,255 when an antibiotic given to patients with acute non-specific respiratory infections	http://www.annfammed.org/content/11/2/165.full

Session 3 – Targeting Prescribing for Respiratory Tract Infection (continued)

Author	Reference	What it tells us	Link
Wark, P.	Bronchitis (acute). Clinical Evidence. London. BMJ publishing Group 2008; 07: 1508-1534	Antibiotics only a modest effect compared to placebo	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2907939/
NICE	Respiratory tract infections – Prescribing of antibiotics for self-limiting respiratory tract infections in adults and children in primary care. 2008. (Clinical Guideline 69)	Includes criteria to define higher risk patients who may be more likely to require an antibiotic	https://www.nice.org.uk/guidance/cg69
Hay, A.D. et al.	Development and internal validation of a clinical rule to improve antibiotic use in children presenting to primary care with acute respiratory tract infection and cough: a prognostic cohort study. The Lancet Resp Med September 1, 2016	Screening tool STARWAVE to establish risk of hospital admission in children with cough	http://www.thelancet.com/pdfs/journals/lanres/PIIS2213-2600(16)30223-5.pdf
Public Health England	Pneumococcal disease – cases caused by strains covered by Prevenar 13 vaccine. Updated August 2016	Cumulative weekly number of reports of Invasive Pneumococcal Disease due to any of the 13 serotypes in Prevenar13™: children aged <2 years in England & Wales by epidemiological year, from July-June (2006 to now)	https://www.gov.uk/government/publications/pneumococcal-disease-cases-caused-by-strains-covered-by-prevenar-13-vaccine/pneumococcal-disease-cases-caused-by-strains-covered-by-prevenar-13-vaccine
Wallis, C.Y. et al.	Impact of pneumococcal conjugate vaccines on childhood otitis media in the UK. Vaccine Volume 33, Issue 39, 22 September 2015, pp. 5072-5079	Demonstrates that the pneumococcal vaccines has positively reduced the incidence of otitis media since its introduction	http://www.sciencedirect.com/science/article/pii/S0264410X15011445
Quigley, M.A. et al.	Breastfeeding and hospitalization for diarrheal and respiratory infection in the United Kingdom Millennium Cohort Study. Paediatrics 2007	53% of diarrheal hospitalizations and 27% of lower RTI hospitalizations could have been prevented each month by exclusive breastfeeding, and 31% diarrheal and 25% RTI by partial breastfeeding	https://www.ncbi.nlm.nih.gov/pubmed/17403827

Session 3 – Targeting Prescribing for Respiratory Tract Infection (continued)

Author	Reference	What it tells us	Link
NHS National Services Scotland	Breastfeeding Statistics Scotland 2015/16 Publication date: 25 October 2016	Outlines rates and trends for breastfeeding and compares health boards	https://isdscotland.scot.nhs.uk/Health-Topics/Child-Health/Publications/2016-10-25/2016-10-25-Breastfeeding-Report.pdf?14095705748
Ebell, M.H. et al.	How Long Does a Cough Last? Comparing Patients' Expectations With Data From a Systematic Review of the Literature. <i>Ann Fam Med</i> January/February 2013 11: 5-13	Demonstrated that patients thought acute cough would have a median duration of 5-7 days. This is a mismatch with what the actual duration is likely to be (around three weeks)	http://www.annfammed.org/content/11/1/5.long
Spurling, G.K.P. et al.	Delayed Antibiotics For Respiratory Infections. <i>Cochrane Database of Systematic Reviews</i> . April 2013	This review looked at 10 studies, involving 3157 participants, looking at prescribing strategies for respiratory infections. Shows that delayed strategies can reduce antibiotic use	http://www.cochrane.org/CD004417/ARI_delayed-antibiotics-for-symptoms-and-complications-of-acute-respiratory-tract-infections
Little, P. et al. (DESCARTE investigators)	Antibiotic prescription strategies for acute sore throat: a prospective observational cohort study <i>Lancet Infect Dis</i> . 2014 Mar; 14(3): 213-9	Complications are uncommon but delayed prescribing reduces complications to a similar extent (45%) to immediate antibiotics (39%)	https://www.ncbi.nlm.nih.gov/pubmed/24440616
Scottish Antimicrobial Prescribing Group	Feasibility study using CRP testing in General Practice in Scotland 2015/16 – Summary paper	Outlines the results of a study that was done in the winter of 2015/16 to test the practicalities of using CRP testing in general practice to support targeted use of antibiotics for RTI	http://www.scottishmedicines.org.uk/SAPG/C-reactive_protein_CRP
Aabenhus, R.	Use of rapid point-of-care testing for infection to guide doctors prescribing antibiotics for acute respiratory infections in primary care settings. <i>Cochrane</i> 2014	Summary of the evidence for point of care testing for infections	http://www.cochrane.org/CD010130/ARI_use-of-rapid-point-of-care-testing-for-infection-to-guide-doctors-prescribing-antibiotics-for-acute-respiratory-infections-in-primary-care-settings

Session 3 – Targeting Prescribing for Respiratory Tract Infection (continued)

Author	Reference	What it tells us	Link
O'sullivan, J.W. et al.	Written information for patients (or parents of child patients), to reduce the use of antibiotics for acute upper respiratory tract infections in primary care. Cochrane database of systematic reviews; Nov 2016	Only two studies were available. The moderate quality evidence showed trained GPs giving information to parents reduced the number antibiotics without any negative effects on satisfaction or reconsultation. It recognised that better quality evidence around this is required	http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD011360.pub2/full
Patient information Resources			
Public Health England/RCGP	Leaflet – 'Treating Your Infection'	A leaflet to support discussion with a patient about their self-limiting illness, and give safety-netting information for them to take away. Available in 17 languages	http://www.rcgp.org.uk/clinical-and-research/toolkits/target-antibiotics-toolkit/patient-information-leaflets.aspx
Cardiff University	Leaflet – 'When Should I Worry?'	Evidence-based booklet. Provides information for parents about the management of respiratory tract infections (coughs, colds, sore throats, and ear aches) in children, and has been designed to be used in primary care consultations	http://www.whenshouldiworry.com/

Session 4a – Uncomplicated UTI

Author	Reference	What it tells us	Link
Public Health England/ British Infection Association	Diagnosis of UTI. Quick Reference Guide for Primary Care 2011 Update	Diagnostic algorithm for the diagnosis of UTI	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/323398/UTI_guidelines_with_RCGP_logo.pdf
NICE	Clinical Knowledge Summaries – lower urinary tract infection in women	Summary of the diagnosis and management of lower urinary tract infection	http://cks.nice.org.uk/urinary-tract-infection-lower-women#!diagnosisadditional
NICE	Referral guidelines for suspected cancer in adults and children 2005 CG 27	Guideline outlining when patients should be referred for investigation of suspected cancer	https://www.nice.org.uk/guidance/cg27
Renal Association and British Association of Urological Surgeons	Joint Consensus Statement on the Initial Assessment of Haematuria published by the Renal Association and British Association of Urological Surgeons 2008	Covers the management of haematuria in the urine	http://www.renal.org/docs/default-source/what-we-do/RA-BAUS_Haematuria_Consensus_Guidelines.pdf?sfvrsn=0
NHS National Services Scotland (HPS, SAPG, SMC, ISD)	Scottish Antimicrobial Use and Resistance in Humans 2015	Published annually. Information on primary and secondary care antimicrobial prescribing volumes, and resistance patterns and associated trends	http://www.isdscotland.org/Health-Topics/Prescribing-and-Medicines/Publications/2016-08-30/2016-08-30-SAPG-2015-Report.pdf
Vellinga, A.	Predictive value of antimicrobial susceptibility from previous urinary tract infection in the treatment of re-infection Br J Gen Pract. 2010 Jul; 60(576): 511-3	Positive and negative predictive values for samples still being resistant/sensitive to commonly used antibiotics at 3 months and up to 12 months	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2894379/
SIGN/HIS	Management of Suspected Urinary Tract Infection in Adults SIGN 88 (July 2012)	National clinical guideline to support the management of urinary tract infection in adults	http://www.sign.ac.uk/pdf/sign88.pdf
McNulty, C.A.M.	Clinical relevance of laboratory-reported antibiotic resistance in acute uncomplicated urinary tract infection in primary care J. Antimicrob. Chemother. (2006) 58 (5): 1000-1008	Importance of taking resistance into account when choosing empirical antibiotics. If patients represent within a week they should have a change of antibiotic with urine culture and susceptibility testing	http://jac.oxfordjournals.org/content/58/5/1000.long

Session 4a – Uncomplicated UTI (continued)

Author	Reference	What it tells us	Link
Milo, G. et al.	Duration of antibacterial treatment for uncomplicated urinary tract infection in women	Three days of antibiotic therapy is similar to 5-10 days in achieving symptomatic cure during uncomplicated UTI treatment, while the longer treatment is more effective in obtaining bacteriological cure	http://www.cochrane.org/CD004682/RENAL_duration-of-antibacterial-treatment-for-uncomplicated-urinary-tract-infection-in-women
<u>Lutters and Vogt-Ferrier</u>	Antibiotic duration for treating uncomplicated, symptomatic lower urinary tract infections in elderly women. Cochrane 2008	Short-course treatment (3 to 6 days) could be sufficient for treating uncomplicated UTIs in elderly women, although more studies on specific commonly prescribed antibiotics are needed	http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD001535.pub2/abstract
American College of Obstetricians & Gynecologists	Treatment of urinary tract infections in non-pregnant women (2008) NGC: 006536	Amongst other recommendations includes: 'A three-day antimicrobial regimen is the preferred treatment duration for uncomplicated acute bacterial cystitis in women, including women aged 65 years and older'	https://www.guideline.gov/summaries/summary/12628/Treatment-of-urinary-tract-infections-in-nonpregnant-women
Mangin, D.	BMJ Editorial: Urinary tract infection in primary care. How doctors deliver care is as influential as the treatment itself BMJ 2010; 340: c657	>1 in 3 symptomatic women have no identifiable bacteriological infection	http://www.bmj.com/content/340/bmj.c657
Bleidorn. et al.	Symptomatic treatment (ibuprofen) or antibiotics (ciprofloxacin) for uncomplicated urinary tract infection? – Results of a randomized controlled pilot trial, BMC Medicine 2010, 8:30	Some cases of cystitis are due to inflammation without an infecting organism. The effectiveness of some antibiotics may be due to anti-inflammatory action rather than antibacterial. Ibuprofen non-inferior to ciprofloxacin	http://www.biomedcentral.com/content/pdf/1741-7015-8-30.pdf
Butler, C. et al.	Incidence, severity, helpseeking, and management of uncomplicated UTI as population based study Br J Gen Pract 2015: 702-707	Household survey 2424 adult females of incidence and management of UTI. One third reported to not taking antibiotics as prescribed	https://www.ncbi.nlm.nih.gov/pubmed/26412847
Knottnerus. et al.	Women with symptoms of uncomplicated urinary tract infection are often willing to delay antibiotic treatment: a prospective cohort study, BMC Family Practice 2013, 14: 71	Supports the use of delayed prescribing for UTI. Indicated that 37% of women were willing to delay treatment, with 55% of these not using antibiotics	http://www.biomedcentral.com/content/pdf/1471-2296-14-71.pdf

Session 4a – Uncomplicated UTI (continued)

Author	Reference	What it tells us	Link
Little. et al.	Effectiveness of five different approaches in management of urinary tract infection: randomised controlled trial. BMJ 2010; 340: c199	Supports delayed prescribing for UTI as a method to reduce antibiotic use. Delayed group reconsulted less, although symptoms lasted slightly longer	http://www.bmj.com/content/340/bmj.c199.pdf%2Bhtml
Leydon. et al.	Women's views about management and cause of urinary tract infection: qualitative interview study BMJ 2010; 340: c279	Women preferred not to take antibiotics and were open to alternative management approaches	http://www.bmj.com/content/340/bmj.c279.pdf%2Bhtml
Gaynor, I. et al.	Ibuprofen versus fosfomycin for uncomplicated urinary tract infection in women: randomised controlled trial BMJ 2015; 351: h6544	Ibuprofen versus fosfomycin relative reduction rate antibiotics 66.5%. Symptoms slightly worse/lasted day longer. Five cases of pyelonephritis versus one in fosfomycin group (p=0.12) but higher initial symptom scores	http://www.bmj.com/content/351/bmj.h6544

Patient information Resources

Public Health England	Leaflet – Treating your urinary symptoms	Leaflet to be used as an aid to consultation on UTI, and provide information on prevention and self-management for patient	http://www.rcgp.org.uk/TARGETantibiotics
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Session 4b – Complicated UTI

Author	Reference	What it tells us	Link
Scottish Antimicrobial Prescribing Group	Decision aid for diagnosis and management of suspected urinary tract infection (UTI) in older people. January 2016	Decision aid to support appropriate diagnosis of UTI in older adults – including those residing in care homes	https://www.scottishmedicines.org.uk/files/sapg1/SAPG_Decision_aid_for_UTI_in_older_people.pdf
NHS Education Scotland	Delirium Learning Resources	A range of learning resources to support staff and enhance their knowledge and understanding of delirium	http://www.nes.scot.nhs.uk/education-and-training/by-theme-initiative/mental-health-and-learning-disabilities/publications-and-resources/publications-repository/delirium-learning-resources.aspx

Session 4b – Complicated UTI (continued)

Author	Reference	What it tells us	Link
NHS Education Scotland	Supporting People with Dementia in Acute Care. Learning Resource 2016	Aimed at enabling better understanding of dementia, patient centred assessment, and holistic care. Contains summary table to compare dementia, depression and delirium (pp.35-36)	http://www.nes.scot.nhs.uk/media/3558870/Supporting%20People%20with%20Dementia%20in%20Acute%20Care%20Final%202016%20WEB.pdf
Colgan, R. et al.	Prevalence of asymptomatic bacteriuria in selected population: Am Fam Physician 2006 Sep 15; 74(6) 985-990	Contains information on epidemiology of asymptomatic bacteria	http://www.aafp.org/afp/2006/0915/p985.html
Healthcare Protection Scotland	Bundle for preventing urinary tract infections in community settings when inserting and maintaining a urinary catheter	Patient safety bundle to support reduction in catheter associated UTI	http://www.documents.hps.scot.nhs.uk/hai/infection-control/bundles/cauti/uc-community-v2.pdf
NHS Education Scotland	Indwelling urinary catheter maintenance resources	Resources developed by NES in collaboration with care inspectorate. Includes posters for good practice in catheter maintenance	http://www.nes.scot.nhs.uk/education-and-training/by-theme-initiative/healthcare-associated-infections/training-resources/indwelling-urinary-catheter-maintenance
Scottish Antimicrobial Prescribing Group	Urinary Tract Infection Prophylaxis in men and antibiotic course length Dec 2015	Contains advice on male patients receiving repeat prescriptions for UTI prophylaxis and appropriate duration of treatment for patients with prostatitis	http://www.scottishmedicines.org.uk/files/sapg/Advice_on_antibiotic_use_in_recurrent_UTI_in_men_and_prostatitis_2015.pdf
Vellinga, A.	Predictive value of antimicrobial susceptibility from previous urinary tract infection in the treatment of re-infection Br J Gen Pract. 2010 Jul; 60 (576): 511-3	Positive and negative predictive values for samples still being resistant/sensitive to commonly used antibiotics at 3 months and up to 12 months	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2894379/

Session 4c – Recurrent UTI

Author	Reference	What it tells us	Link
Public Health England/ British Infection Association	Diagnosis of UTI. Quick Reference Guide for Primary Care 2011 Update	Diagnostic algorithm for the diagnosis of UTI	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/323398/UTI_guidelines_with_RCGP_logo.pdf
MacBride, M.A. et al.	Vulvovaginal atrophy. Mayo Clin Proc. 2010 Jan; 85(1): 87–94.	General article covering the condition including the prevalence, diagnosis and treatment	http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2800285/
European Association of Urology	Guidelines on Urological Infections (2015)	Comprehensive evidence-based guidance regarding the treatment and prophylaxis of urinary tract infections	http://uroweb.org/wp-content/uploads/19-Urological-infections_LR2.pdf
Scottish Antimicrobial Prescribing Group	Guidance on management of recurrent UTI in non-pregnant women	Includes information on diagnosing recurrent UTI, prophylaxis antibiotic duration and stopping	https://www.scottishmedicines.org.uk/files/sapg1/Management_of_recurrent_lower_UTI_in_non-pregnant_women.pdf
Jepson, R.G.	Cranberries for preventing urinary tract infections. Cochrane 2012	There was a small trend towards fewer UTIs in people taking cranberry product compared to placebo or no treatment but this was not a significant finding	http://www.cochrane.org/CD001321/RENAL_cranberries-for-preventing-urinary-tract-infections
O’Kane, D.B.	Urinary alkalinisation for uncomplicated UTI. Cochrane 2016.	Lack of relevant evidence to assess safety and efficacy of alkalinising agents	http://www.cochrane.org/CD010745/RENAL_urinary-alkalisation-uncomplicated-urinary-tract-infections
Vellinga, A.	Predictive value of antimicrobial susceptibility from previous urinary tract infection in the treatment of re-infection Br J Gen Pract. 2010 Jul; 60 (576): 511-3	Positive and negative predictive values for samples still being resistant/sensitive to commonly used antibiotics at 3 months and up to 12 months	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2894379/
European Association of Urology	Guidelines on Urological Infections (2015)	Comprehensive evidence-based guidance regarding the treatment and prophylaxis of urinary tract infections	http://uroweb.org/wp-content/uploads/19-Urological-infections_LR2.pdf

Session 4c – Recurrent UTI (continued)

Author	Reference	What it tells us	Link
Scottish Antimicrobial Prescribing Group	Urinary Tract Infection Prophylaxis in men and antibiotic course length, Dec 2015	Contains advice on male patients receiving repeat prescriptions for UTI prophylaxis and appropriate duration of treatment for patients with prostatitis	http://www.scottishmedicines.org.uk/files/sapg/Advice_on_antibiotic_use_in_recurrent_UTI_in_men_and_prostatitis_2015.pdf
Patient Information Resources			
Patient.co.uk	Recurrent cystitis in women	Patient leaflet on recurrent cystitis	http://patient.info/health/recurrent-cystitis-in-women

Appendix 2a – Certificate of ScRAP Participation



Scottish
Antimicrobial
Prescribing
Group



Continuing Professional Development

CERTIFICATE OF PARTICIPATION

Name:

Activity: **ScRAP Learning Session**

Duration:

Date:

I hereby certify that the above-named individual participated in the learning activity outlined above.

Organising Body:

Accreditor Name:

Accreditor Signature:

Appendix 2b – GP CPD Credit Record

CPD Credit Record for self-completion		
What were your learning objectives for this accredited activity?		
Time to complete activity	hours	minutes
Other time taken for planning and reflection	hours	minutes
Total Time	hours	minutes
Impact of activity	Low <input type="checkbox"/> (go to Total Points) High <input type="checkbox"/> (describe below)	
What will you do/have you done as a result? (Explain why the activity is High Impact – guidance below)		Multiply total hours x2
Total Points		

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