



Audits as an antimicrobial stewardship tool

TARGET Antibiotic Toolkit
2023



Introductions



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Optimisation Pharmacist,
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Antimicrobial Pharmacist,
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University Health Board,
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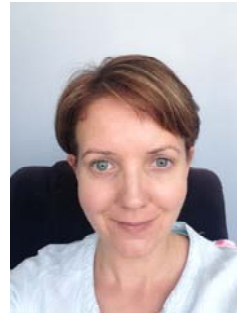
Introductions – TARGET and RCGP



Dr Donna Lecky



Cath Hayes



Emily Cooper



Eirwen Sides



Fionna Pursey



Julie Brooke



Liam Clayton



Camilla Stevenson



Dr Dharini
Shanmugabavan



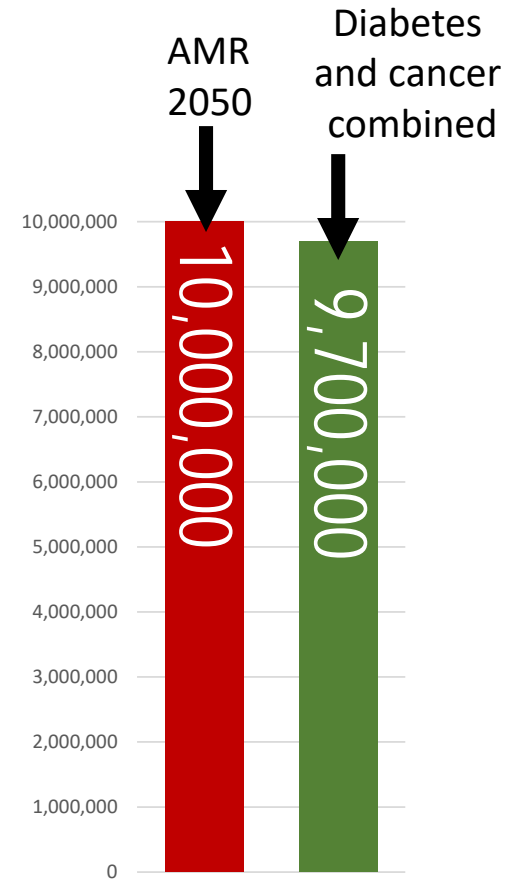
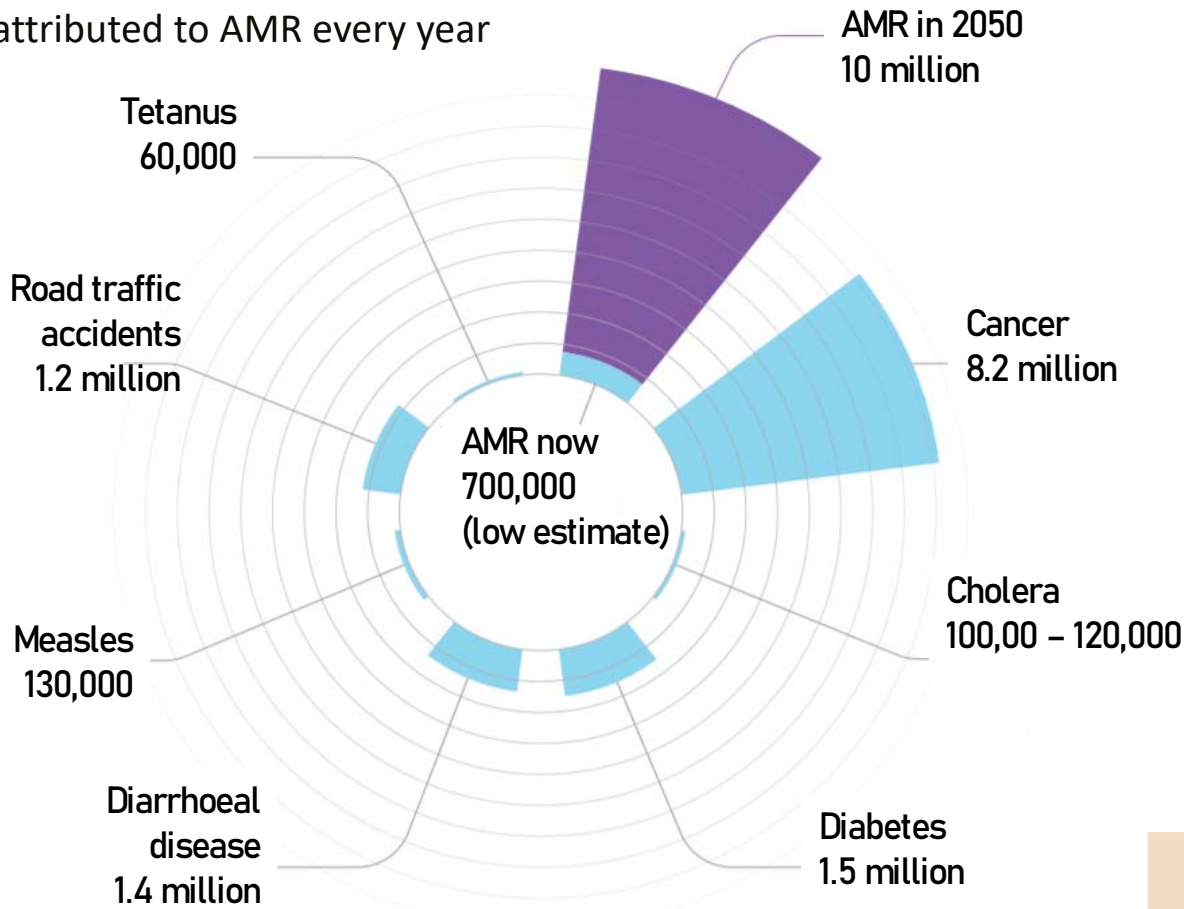
Topics to cover

1. Background and context
2. Why use audit and feedback?
3. Prescribing data sources
4. Available audit tools
5. Practical tips
6. Case study: How a practice improved UTI management by using audits and other tools



Antimicrobial resistance a major issue

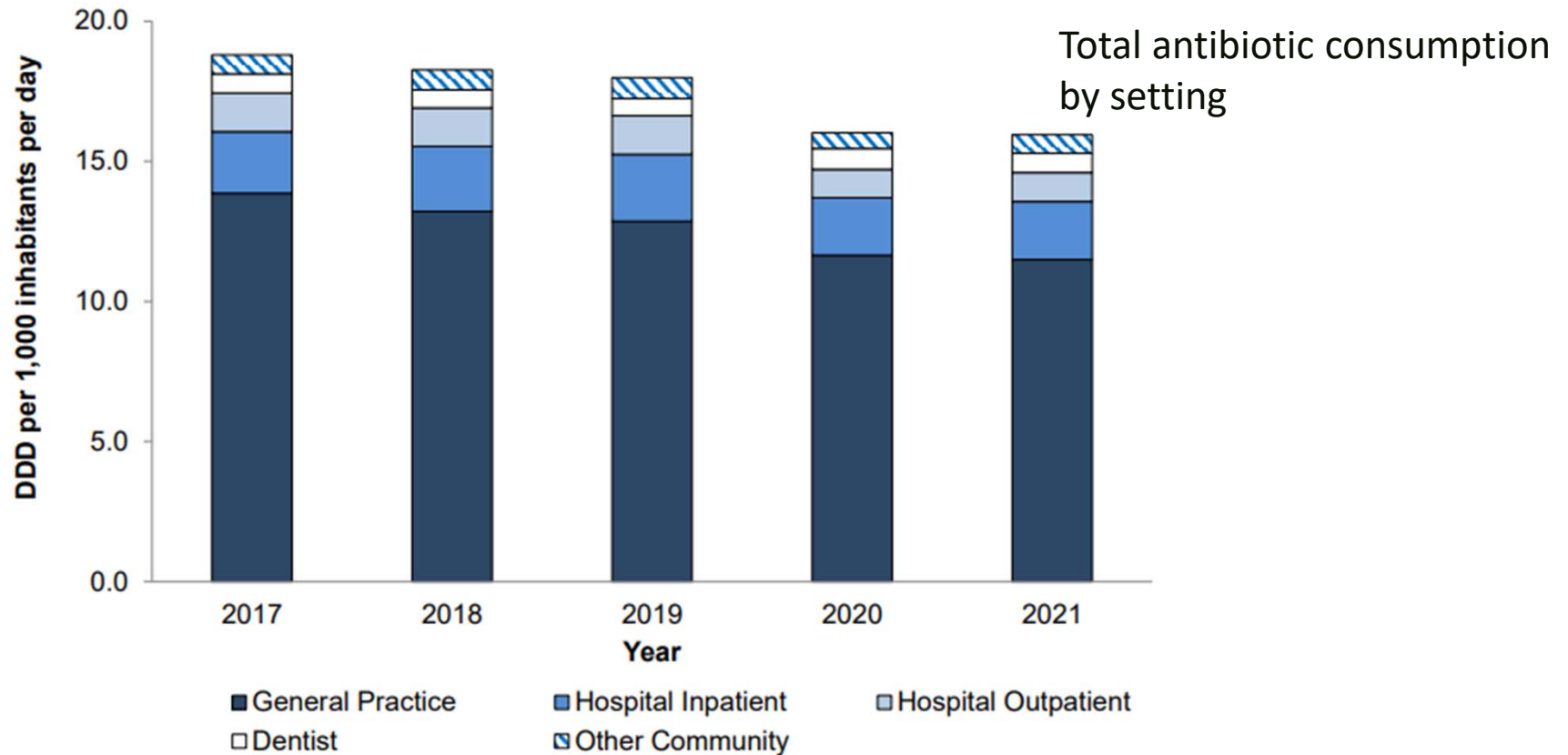
Deaths attributed to AMR every year



(O'Neill, 2016)



Majority of antibiotics are prescribed in general practice





Why audit antibiotic prescribing?

1. Evaluate, support and promote good prescribing practices
2. Improve the quality of prescriptions
3. Improve prescribing safety in general practice



Why use audit and feedback?

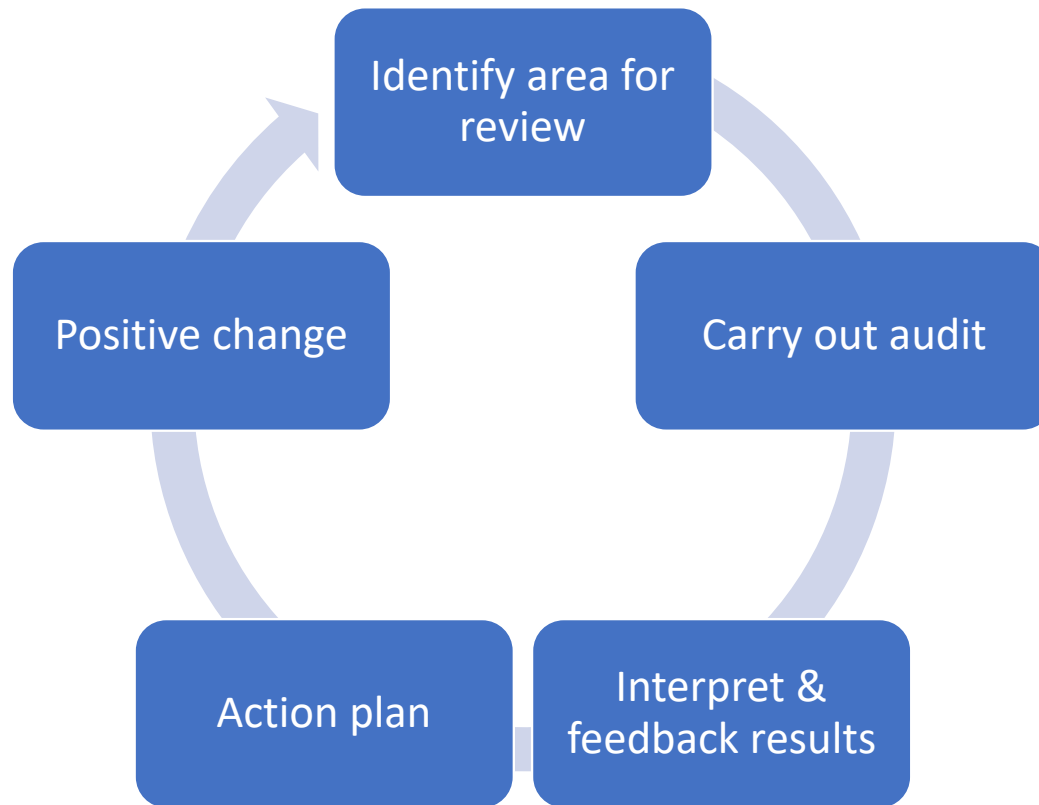
1. Identify areas for improvement and areas to celebrate
2. Personal development & reflection on own antibiotic prescribing
3. Practice-wide reflection on antibiotic prescribing
4. Problem solving
5. Action to support positive change



Optimise prescribing & reduce AMR



Audit and feedback cycle for positive change





Audit and feedback: effectiveness

Cochrane Database of Systematic Reviews | [Review - Intervention](#)

Audit and feedback: effects on professional practice and healthcare outcomes

✉ Noah Ivers, Gro Jamtvedt, Signe Flottorp, Jane M Young, Jan Odgaard-Jensen, Simon D French, Mary Ann O'Brien, Marit Johansen, Jeremy Grimshaw, Andrew D Oxman Authors' declarations of interest

Version published: 13 June 2012 [Version history](#)

<https://doi.org/10.1002/14651858.CD000259.pub3> [↗](#)

- Cochrane Review of randomised controlled trials
- Audit and feedback increases healthcare professional compliance with desired practice

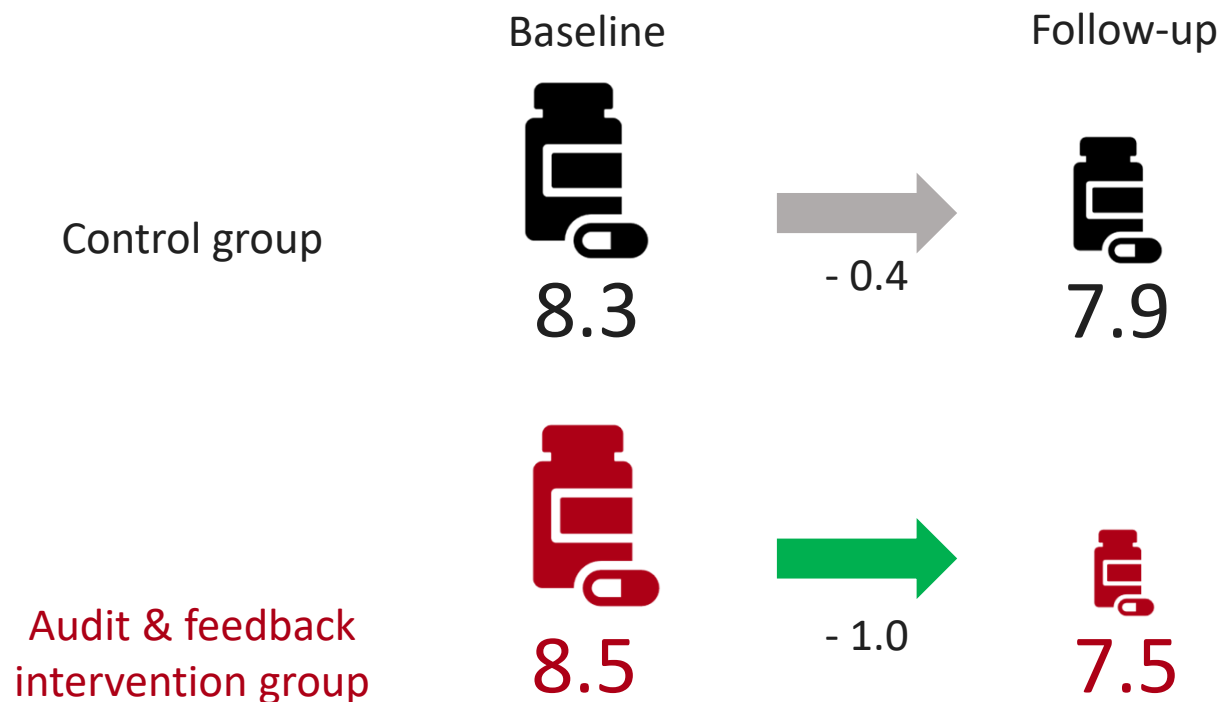
Feedback may be more effective when:

- Baseline performance is low
- The source is a supervisor or colleague
- Provided more than once
- Delivered in both verbal and written formats
- It includes explicit targets & an action plan



Audit and feedback can reduce antibiotic prescribing

**Randomised
controlled trial**

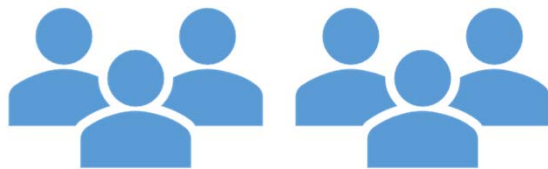


(Antibiotic items per 100 NHS treatment claims)



Audit and feedback thought to increase engagement & help achieve antibiotic targets

- Workshop with AMS leads within Clinical Commissioning Groups (CCGs)



Audits help increase engagement between GP practices and commissioning groups to achieve Quality Premium antibiotic targets



What data can be used to look at prescribing?

PrescQIPP

OpenPrescribing

Fingertips

ePACT/ePACT2



<https://www.prescqipp.info/our-resources/webkits/antimicrobial-stewardship/>

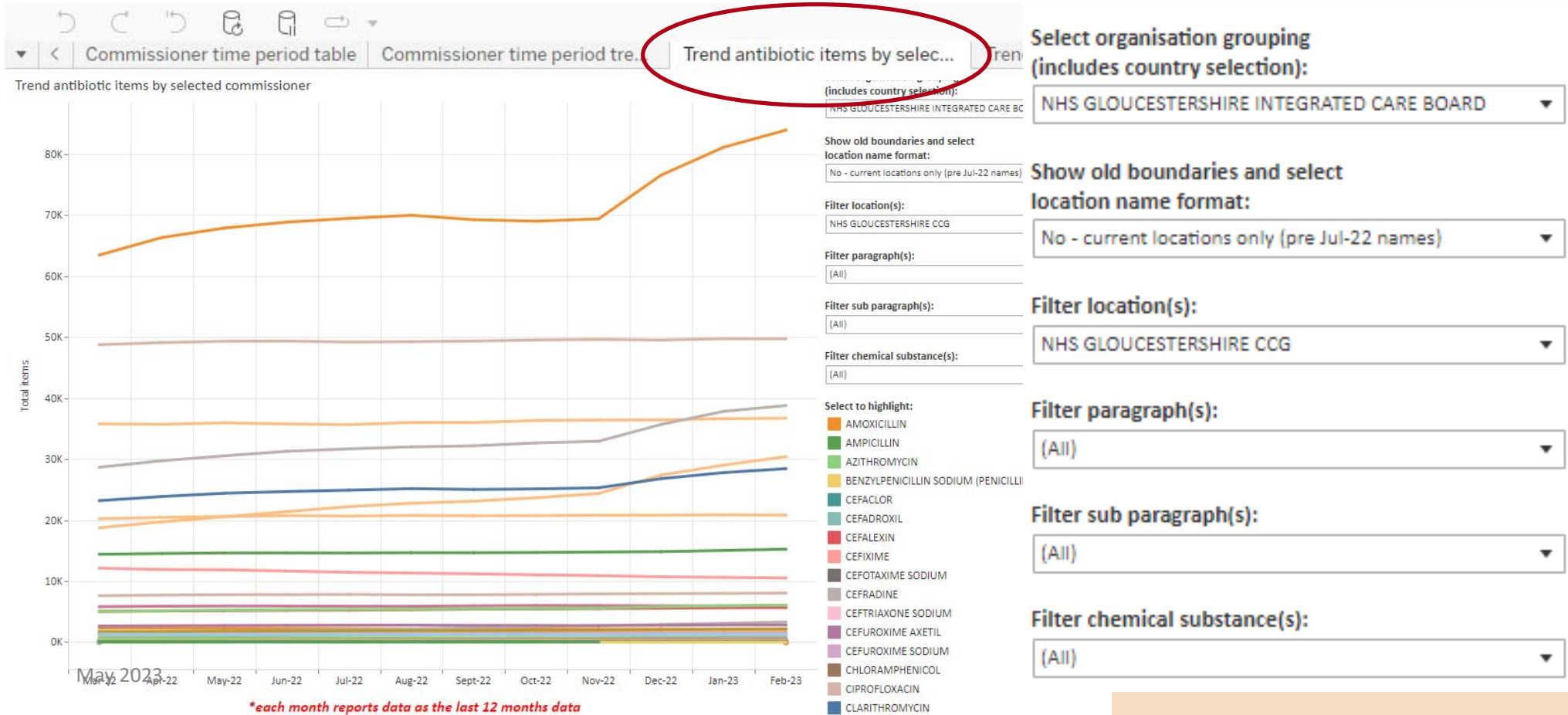


[Home](#) > [Our resources](#) > [Webkits](#) > [Antimicrobial stewardship](#) > AMS Visual Analytics to support NHS antimicrobial stewardship improvement 2022/23

AMS Visual Analytics to support NHS antimicrobial stewardship improvement 2022/23



PrescQIPP: Accessing prescribing data Gloucestershire ICB (Mar 2022 – Feb 2023)





OpenPrescribing

openprescribing.net/

- Open access
- Drug prescribing
- Monthly prescribing alerts

Explore England's prescribing data

Every month, the NHS in England publishes [anonymised data](#) about the drugs prescribed by GPs. But the raw data files are large and unwieldy, with more than 700 million rows. We're making it easier for GPs, managers and everyone to explore - supporting safer, more efficient prescribing.

How to cite: If you use our data or graphs, please cite as *OpenPrescribing.net, Bennett Institute for Applied Data Science, University of Oxford, 2022* so that others can find us and use our tools.

Explore the data

Look at your Sub-ICB Location

We've identified standard [prescribing measures](#), and created dashboards for every ICB, Sub-ICB Location, and practice in the country.

[Find a Sub-ICB Location »](#)

Run your own analyses

If you have a burning question about the prescribing data, use our flexible query form to get the data you need, quickly and easily.

[Start analysing »](#)

Look at your GP practice

We've identified standard prescribing measures, and created dashboards for every GP practice in the country.

[Find a practice »](#)

Spot national trends

See how national prescribing trends have changed since 2010, for any drug or [BNF section](#) that interests you.

[Find a drug »](#)



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OpenPrescribing: Run your own analysis

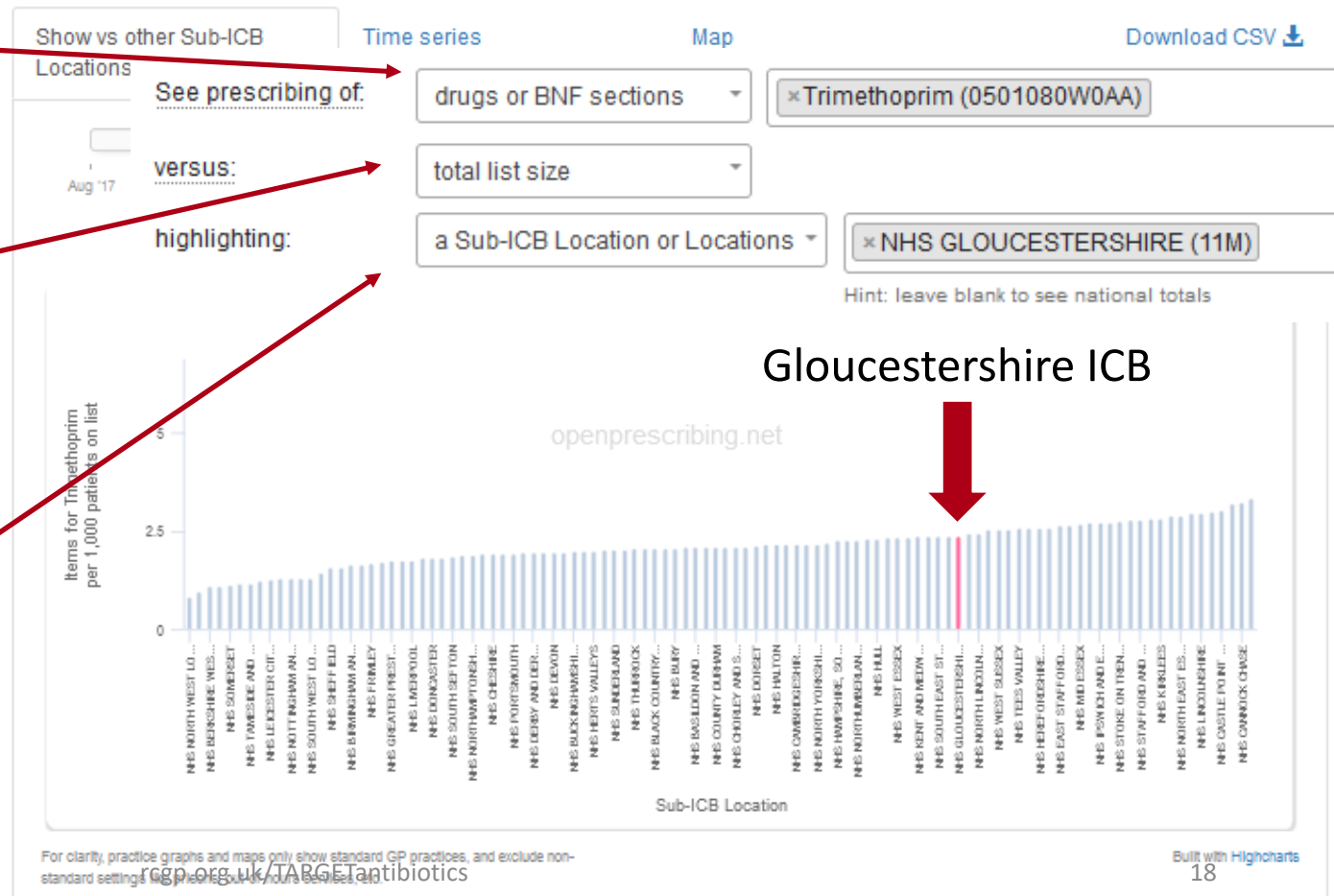
1. Choose prescribing drug

2. Compare against

- Nothing
- Drugs or BNF sections
- Total list size
- STAR-PU for antibiotics

3. Highlight

- Practice(s)
- Sub-ICB location(s)
- PCN(s)
- ICB(s)
- Region

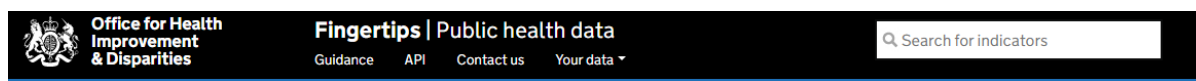




Fingertips | Public health data

fingertips.phe.org.uk/

- Open access
- Browse indicators at different geographical levels
- Benchmark against the regional or England average
- Export data to use locally



Public health profiles

Fingertips is a large public health data collection. Data is organised into themed profiles. Start by choosing a profile from the list.

Highlighted profiles

[Cardiovascular Disease, Diabetes and Kidney Disease](#)
[Child and Maternal Health](#)
[Mental Health, Dementia and Neurology](#)

[National General Practice Profiles](#)
[Productive Healthy Ageing Profile](#)
[Public Health Outcomes Framework](#)

National public health profiles

[AMR local indicators - produced by the UKHSA](#)
[Atlas of Variation](#)
[Cancer Services](#)
[Cardiovascular Disease, Diabetes and Kidney Disease](#)
[Child and Maternal Health](#)
[Health Protection](#)
[Inequality Tools](#)
[Inhale - INteractive Health Atlas of Lung conditions in England](#)
[Learning Disability Profiles](#)
[Liver Disease Profiles](#)
[Local Alcohol Profiles for England](#)
[Local Authority Health Profiles](#)
[Local Health - Small Area Public Health Data](#)

[Mental Health, Dementia and Neurology](#)
[Modelled Prevalence Estimates](#)
[Mortality Profile](#)
[Musculoskeletal Conditions](#)
[National General Practice Profiles](#)
[NHS Health Check](#)
[Obesity Profile](#)
[Palliative and End of Life Care Profiles](#)
[Physical Activity](#)
[Productive Healthy Ageing Profile](#)
[Public Health Dashboard](#)
[Public Health Outcomes Framework](#)
[Sexual and Reproductive Health Profiles](#)
[TB Strategy Monitoring Indicators](#)

Latest news

October 2022

STI and HIV indicators in the [Sexual and Reproductive Health Profiles](#) updated, including new and modified indicators

September 2022

ONS 2021 population estimates are delayed to enable their alignment with Census results. This delay will have an impact on the publication of indicators which use populations either directly or in their denominators (compare [Impact of Census 2021](#))

June 2022

Integrated Care Boards (ICBs): new geography type added to [GP profiles](#)

March 2022

[Child and Maternal Health](#) updated

February 2022

[PHOE](#): quarterly update published

December 2021

[HIV indicators](#) updated in time for 1st Dec, World AIDS day

[Cancer Services](#): annual update released



Home > Profile home

AMR local indicators - produced by the UKHSA

About the AMR local indicators

Data have been uploaded across six domains: The AMR local indicators are produced by the [UKHSA](#).

- Supporting NHS England Initiatives
- Antimicrobial Resistance (AMR)
- Antibiotic Prescribing
- Healthcare-Associated Infections (HCAI)
- Infection Prevention and Control (IPC)
- Antimicrobial stewardship (AMS)

Antibiotic prescribing and antibiotic resistance are inextricably linked, as overuse and incorrect use of antibiotics are major drivers of resistance. AMR local indicators are publically available data intended to raise awareness of antibiotic prescribing, AMR, HCAI, IPC and AMS; and to facilitate the development of local action plans. The data published in this tool may be used by healthcare staff, commissioners, directors of public health, academics and the public to compare the situation in their local area to the national picture.

For further information about this profile, [please click here to download the user guide](#).

Updated indicators

September 2022 - The following indicators have been updated in the Profile AMR Local Indicators:

Topic: **Healthcare Associated Infections** Area: **Acute Trusts, CCGs (from April 2021) updated for up to July 2022**

Topic: **Antimicrobial Resistance** Area type: **CCGs upto Q2 2022**

E. coli, blood, testing, carbapenem, quarterly, percentage

E. coli, blood, testing, 3rd generation cephalosporin, quarterly, percentage



Recent updates

July 2022

Surveillance of surgical site infections in NHS hospitals in England annual report for 2020 to 2021 [Surgical site infections \(SSI\) surveillance: NHS hospitals in England - GOV.UK \(www.gov.uk\)](#)

May 2022

The first 18 months of carbapenemase-producing Gram-negative bacteria notification data has been published and available from: <https://www.gov.uk/government/publications/carbapenemase-producing-gram-negative-bacteria-laboratory-surveillance>

January 2022

Paper on (Increased mortality in COVID-19 patients with fungal co- and secondary infections admitted to intensive care or high dependency units in NHS hospitals in England) [Increased mortality in COVID-19 patients with fungal co- and secondary](#)



AMR local indicators

Indicator keywords

Supporting NHS England Initiatives | Antimicrobial Resistance | **Antibiotic Prescribing** | Health Care Associated Infection | Infection Prevention and Control | Antimicrobial Stewardship | All Trust | All Clinical Commissioning Group

Overview | Compare indicators | Map | Trends | Compare areas | Area profiles | Definitions | Download

Area type: GP | Areas grouped by: CCGs (2017/18) | Benchmark: England

Area: L81009 - Stockwood Medi | CCGs (2017/18): Bristol

Stockwood Medical Centre, Hollway Road, Stockwood, Bristol, BS14 8PT

Filter indicators

Hide legend

Quintiles: Best | Worst | Not applicable

Indicator
 Total number of prescribed antibiotic items per 1000 registered patients by quarter
 Total number of prescribed antibiotic items per STAR-PU by quarter
 Percentage of broad-spectrum prescribed antibiotic items (cephalosporin, quinolone and co-amoxiclav class) by quarter
 Twelve-month rolling proportion of trimethoprim class prescribed antibiotic items as a ratio of trimethoprim to nitrofurantoin

(cephalosporin, quinolone and co-amoxiclav class) by quarter
 Twelve-month rolling proportion of trimethoprim class prescribed antibiotic items as a ratio of trimethoprim to nitrofurantoin

GP Practice	70.9	99.7	88.5	87.0	91.1	118.5	107.7	106.9	-	78.2	110.2	123.0	151.2	84.6	118.3	113.5	111.9	-	92.2	108.5	77.0	92.9	76.0	120.7	119.0	144.8	150.0	143.1	134.5	83.4	144.3	137.1	78.4	133.4	-	140.8	88.6	-	104.3	92.3	110.9	64.7						
L81112 - Bishopton Medical P...	0.14	0.19	0.20	0.18	0.19	0.20	0.20	0.20	-	0.15	0.21	0.22	0.28	0.12	0.22	0.23	0.22	-	0.18	0.21	0.16	0.17	0.15	0.22	0.21	0.25	0.28	0.28	0.23	0.14	0.25	0.27	0.15	0.23	-	0.27	0.18	-	0.21	0.18	0.19	0.12						
L81007 - Bridge View Medical	7.25	9.86	5.45	7.00	8.64	9.85	6.46	7.79	-	8.58	9.65	4.65	8.89	4.64	7.79	6.96	8.53	-	7.99	13.41	9.10	9.27	7.13	6.70	7.70	10.71	7.94	6.14	9.29	7.21	9.44	8.40	10.29	7.21	-	8.20	7.20	-	7.02	6.24	8.06	8.19						
Y025789 - Broadmead Medical Ce...	31.2	31.3*	36.5	36.1	24.9	30.4	27.7	28.4	21.6	28.7	44.1	32.9	31.2	37.1	21.8	19.5	32.0	25.1	28.0	30.3	34.4	34.2	31.1	48.4	28.0	33.9	27.8	37.3	28.2	32.9	38.7	29.3	34.5	26.9	37.2	13.0	37.0	31.6	34.0	32.8	26.7	41.2	31.9	51.3	36.7	33.5	34.6	20.5



ePACT2 www.nhsbsa.nhs.uk/access-our-data-products/epact2

- Registration with ePACT2
- Dashboards
- Prescribing reports
- Customised for your GP/ICB

NHS Business Services Authority

Information Services

Search the NHSBSA website

Prescription data | eDEN | ePACT2 | Information Services Portal (ISP) | Dental data | Requesting patient data not available through Freedom of Information

ePACT2

ePACT2 is an online application which gives authorised users access to prescription data.

You can access online analyses of prescribing data held by NHS Prescription Services. Data is available 6 weeks after the dispensing month.

ePACT2 has more functionality available to users than the original ePACT system, including the ability to:

- interrogate prescription data in ways not been possible before
- easily create data visualisation using interactive reports and dashboards
- look at high level data summaries down to individual prescription item detail
- schedule queries to be pre-run so the results are available when the user opens a dashboard
- export the data from reports and dashboards
- access to whole country data
- view patterns of prescribing at patient level

ePACT2 provides easy-to-use analysis, reports and dashboards. You don't need an N3 connection as you can access the system with an internet connection.

Access ePACT2

ePACT2

- Dashboards and specifications
- Report information
- User guides
- ePACT2 training
- ePACT2 news

Information Services Portal (ISP)



ePACT2 www.nhsbsa.nhs.uk/access-our-data-products/epact2

Clinical Dashboards

Alerts Dashboard

Antimicrobial Stewardship

Antimicrobial Stewardship - Children

Antimicrobial Stewardship - RightCare UTI Focus Pack

Diabetes Prescribing Comparators

Medication Safety Indicators

Mental Health Prescribing Comparators

Opioid Prescribing Comparators

Polypharmacy Prescribing Comparators

Respiratory

Safer Management of Controlled Drugs

Valproate Prescribing in Female Patients Under 55

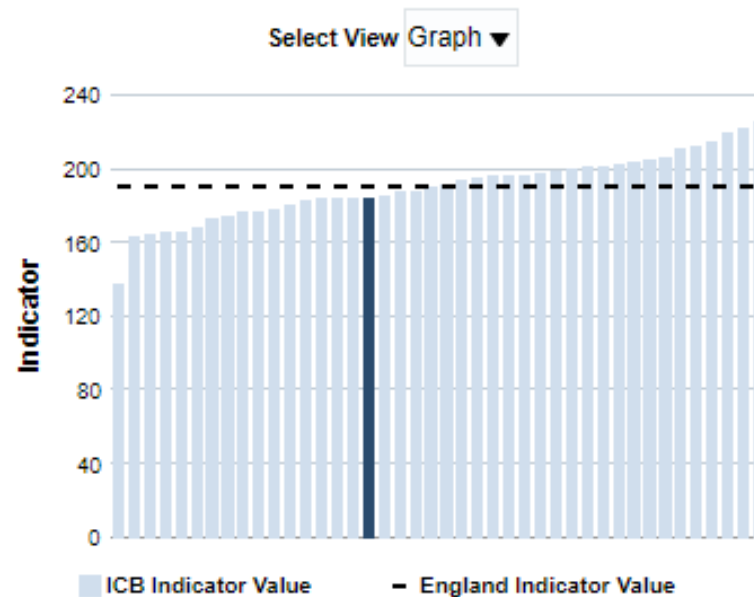


ePACT2 www.nhsbsa.nhs.uk/access-our-data-products/epact2

Number of Nitrofurantoin items prescribed to patients aged 70 years plus, per 1,000 patient list size aged 70 years plus
12 months to 202207 - NHS BATH AND NORTH EAST SOMERSET, SWINDON AND WILTSHIRE INTEGRATED CARE BOARD compared to all ICBs

184 Items
NHS BATH AND NORTH EAST SOMERSET, SWINDON AND WILTSHIRE INTEGRATED CARE BOARD

191 Items
ENGLAND

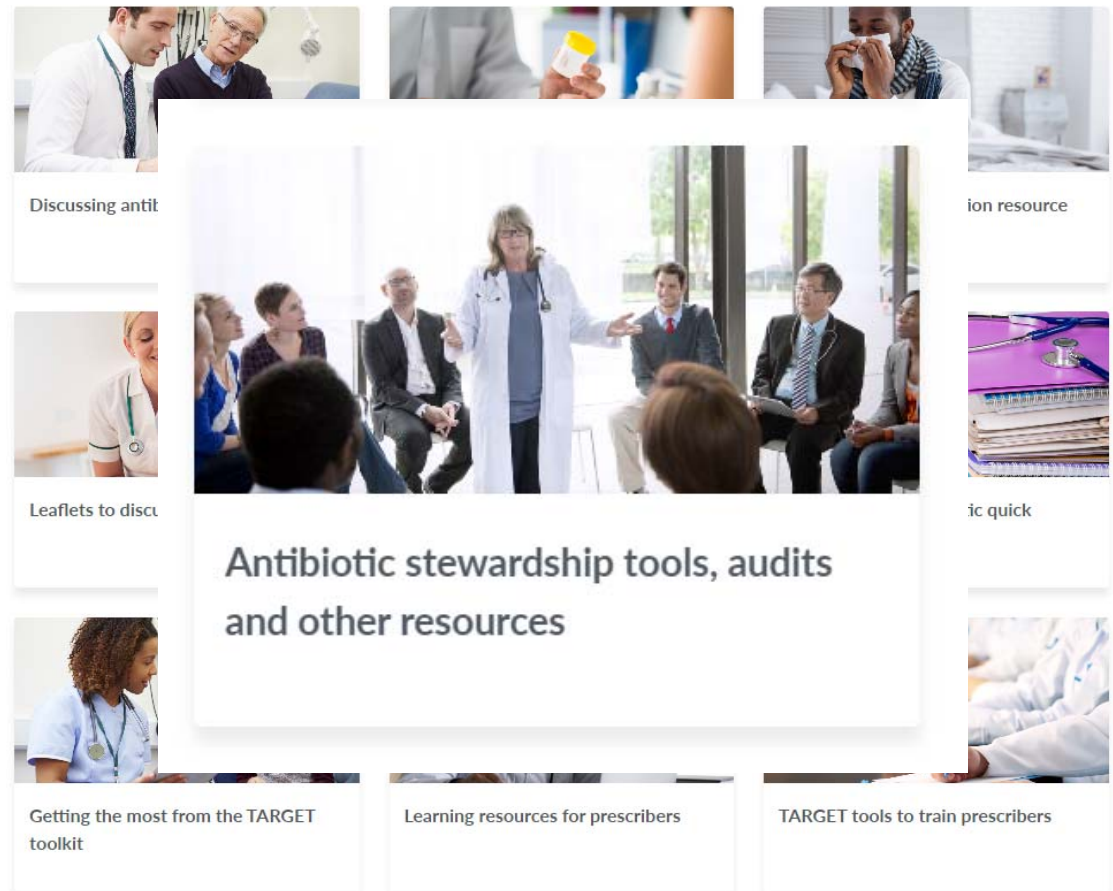




TARGET audit templates

rcgp.org.uk/TARGETantibiotics

- Audits adherence to NICE antimicrobial prescribing guidelines
- MS Word and Excel
- Includes step-by-step instructions
- Calculates % adherence to guidelines
- Summary report
- Performance reflection questions
- Allows to track performance





TARGET audit templates

RTI audits

- Acute cough
- Acute otitis media
- Acute rhinosinusitis

UTI audits

- UTI non-catheterised patients over 65
- Uncomplicated UTI for women under 65
- UTI for catheterised patients

Antibiotic specific

- '4Cs' broad-spectrum antibiotics

Uncomplicated UTIs for women under 65

Patients in audit consulting with UNCOMPLICATED UTI																																		
Compliance with PHE Guidance for	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Number of patients (N)	% of Total with	Your target % for good	NOTES
Evidence of diagnostic decision																																		
A Optional - add clinician initials or role																															0	0%		
B Vaginal/urethral cause excluded e.g. notes mention absence of discharge, e.g. vulvovaginal atrophy, STI or urethritis	1	1	1	0	1	1	1	1	0	1																					8	80%		
C Sepsis considered (e.g. notes contain mention of temperature, heart rate, respiratory rate or BP)	1	1	1	1	1	1	1	1	1	0																					9	90%		
D Pyelonephritis considered (e.g. notes mention absence of fever, chills, flank pain/tenderness)	0	1	1	1	1	1	1	1	0	0																					7	70%		
E Sepsis or Pyelonephritis present	0	0	0	0	0	0	0	0	0	0																					0	0%		
F Lower UTI diagnosis in line with national guidance e.g. PHE: patient has 2 or 3 diagnostic symptoms/signs (dysuria / new nocturia / cloudy urine) OR 1 diagnostic sign AND positive dipstick (nitrite positive or leukocytes AND RBC positive) OR other severe urinary symptoms AND positive dipstick (nitrite positive or leukocytes AND RBC positive)	1	1	1	0	1	1	1	1	1	0																					8	80%		
G Culture sent e.g. if risk of resistance, pyelonephritis suspected, diagnostic uncertainty	1	1	0	0	0	0	0	0	0	1																					3			
Management decision / treatment																																		
H No antibiotic given	1	0	0	0	0	1	1	0	0	0																					3			
I Back-up/delayed antibiotic given	0	1	0	0	0	0	0	0	0	0																					1			
J Immediate antibiotic given	0	0	1	1	1	0	0	1	1	1																					6			
K Patients given treatment according to guideline	1	1	0	0	1	1	1	1	1	1																					8			
L Those patients where an antibiotic was given but an MSU was negative	0	1	0	0	0	0	0	0	0	0																					1			
Giving advice																																		
M Self-care advice given about managing symptoms including fever	0	0	0	0	0	0	0	0	0	1																					1			
N Safety netting advice given about when to re-consult	1	1	1	1	1	1	1	1	1	0																					9			
O Shared the TARGET Treating Your Infection UTI leaflet (or similar leaflet)	1	1	1	0	0	0	1	1	1	1																					7			

- Patients with specific condition/ prescription
- Evidence of diagnostic/ management decision
- Antibiotic choice
- Dose/ frequency
- Course length
- Providing advice: self-care, safety netting, use of TARGET leaflet

Total number of patients in audit			
Criteria	Number of patients	Total % patients	Target %
1 Vaginal/urethral cause excluded	8	80%	
2 Sepsis/pyelonephritis considered	9	90%	
3 No antibiotic given	3	30%	
4 Immediate antibiotic given	6	60%	
5 Self-care advice given about managing symptoms including fever	1	10%	
6 Safety netting advice given about when to re-consult	9	90%	
7 TARGET Treating Your Infection UTI leaflet (or similar leaflet) shared with patient	7	70%	
Were antibiotics prescribed	8	80%	
8 Antibiotic choice correct	4	40%	100%
9 Dose/frequency correct	7	70%	
10 Course length correct	5	50%	

Audit date range 00/01/1900 to 00/01/1900

What can you do to improve guidance compliance? Reflect on your performance and complete the questions below.

The 3 criteria we had the best compliance with are:

- 1.
- 2.
- 3.

The 3 criteria which are priority areas for discussion are:

- 1.
- 2.
- 3.

Reflection: How will I improve our low compliance?

Reflection: How will I maintain our good compliance?

Tips to share with other practices and clinicians:

Things that might help are:

1. Agree a diagnostic and treatment target and re-audit in 1 - 3 months

Tools that could help you:

1. Promote use of PHE or local antimicrobial/management of infection guidelines in practice
2. Encourage use of TARGET Treating Your Infection – Urinary Tract infection (TYI-UTI) leaflet
3. Share TARGET TYI-UTI leaflet on clinical system
4. Promote and conduct TARGET webinars, quiz and eModules

9. Re-audit in ___ months - identify a date when you will repeat the audit (___ / ___ / ___)



Tailoring your approach to suit your practice: practical tips & ideas

Carry out audit

- Identify an audit lead
- Incorporate as part of standard practice e.g. once every year/ quarter/ month
- Audit and reflect on your own prescribing and/or the practice as a whole.
- Coding of infections:
 - Inconsistency can impact data accuracy, search for specific antibiotics
 - Improving coding will make audits easier



Tailoring your approach to suit your practice: practical tips & ideas

Interpret & feedback results

- Consider factors that might impact results e.g. data availability, seasonal variation, population demographics
- Feedback: clear, visual, use strategies including verbal, paper, electronic
- Compare results against targets
- Use practice meetings to present results, engage & develop an action plan



Tailoring your approach to suit your practice: practical tips & ideas

Action plan &
positive change

- Develop action plan tailored to specific roles, with timelines
- Whole practice approach
- TARGET Toolkit has resources to help implement action plan
- Re-audit regularly to monitor progress & change



Case study: How a practice improved UTI management by using audits & other tools



Dr Linda Strettle,
GP, The Village Surgery, Rotherham



UTI audit case study: The issue

Identify area for
review

- In 2020, 20-30 urine samples per day dropped to reception by patients, with incomplete forms
- Further treatment prompted by urine dipstick result
- Inefficient & risk for patient safety



UTI audit case study: Championing change

Carry out audit

- Needed evidence and guidance to engage the practice team
- TARGET AMS workshop & UTI resource suite
- Carried out TARGET UTI over 65s patient audit to assess practice diagnosis & management against national guidelines



UTI audit case study: Whole practice approach

Interpret & feedback results

Audit showed that:

- Urine dipstick results were driving diagnosis & treatment of UTIs in over 65s: **not recommended in guidance**
- Above national average on trimethoprim prescribing compared to nitrofurantoin
- Issuing longer courses of antibiotics than recommended by NICE



UTI audit case study: Whole practice approach

Interpret &
feedback results

- Presented audit evidence to engage whole practice:
 - Receptionists, nurses, GPs & management
 - Tailored level of information depending on role
- Delivered focused adapted TARGET AMS workshop to all clinicians



UTI audit case study: Whole practice approach

Action plan & positive change

- **Receptionists:** Developed simple protocols & process flowcharts for reception staff to encourage 'consultation first' rather than 'dipstick first'
- **Clinicians:** Developed UTI diagnostic flowcharts, distributed to all consultation rooms
- **Patients:** If receptionists received challenges from patients about change of policy, reached out to patient directly to explain reasons
- Gathered feedback from staff throughout process



UTI audit case study: Outcomes 2020 vs 2021 (post-policy change)

Action plan &
positive change

- Urine sample 'drop offs' dropped from **20-30 unsolicited samples** pre-policy change to **5 clinician-requested samples** per day
- Less total antibiotic prescriptions for UTIs post- vs pre-policy change for similar time period
- Clearer documentation of rationale for UTI diagnosis
- More documented safety-netting & discussions with patients regarding risks of antibiotics & AMR



UTI audit case study: Outcomes 2020 vs 2021 (post-policy change)

Action plan &
positive change

Positive changes for staff:

- Reception staff felt empowered, had support of whole team
- Nursing staff spent less time processing samples
- Clinician workload shifted from managing urine sample results to consultations to assess patients in line with national guidance



Case study: key points

- Use TARGET audit templates & other TARGET Toolkit resources to support positive change
- Whole practice approach
- Problem solving
- Part of a wider action plan



Thank you!

Avril Tucker

Antimicrobial pharmacist

Erica Elsdon

Lead medicines optimisation pharmacist

Busola Daramola

Chief pharmacist

Clara Tam

Antimicrobial pharmacist

Dr Harry Ahmed

General practitioner

Dr Linda Strettle

General practitioner

Camilla Stevenson

Project manager at RCGP

Dr Dharini Shanmugabavan

Medical director at RCGP