



UK Health
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Agency

ESPAUR report infographics 2023

English surveillance programme for antimicrobial utilisation and resistance (ESPAUR 2023)





Professional and public education, engagement, and training



Research

NHS

NHS England Improvement and assurance schemes

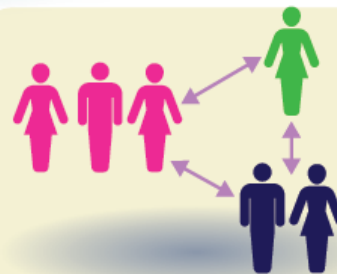
ESPAUR Report 2022-23



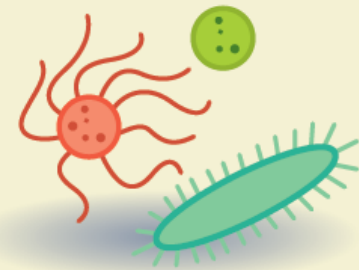
Antimicrobial Stewardship



Antimicrobial consumption



Stakeholder engagement



Antimicrobial resistance

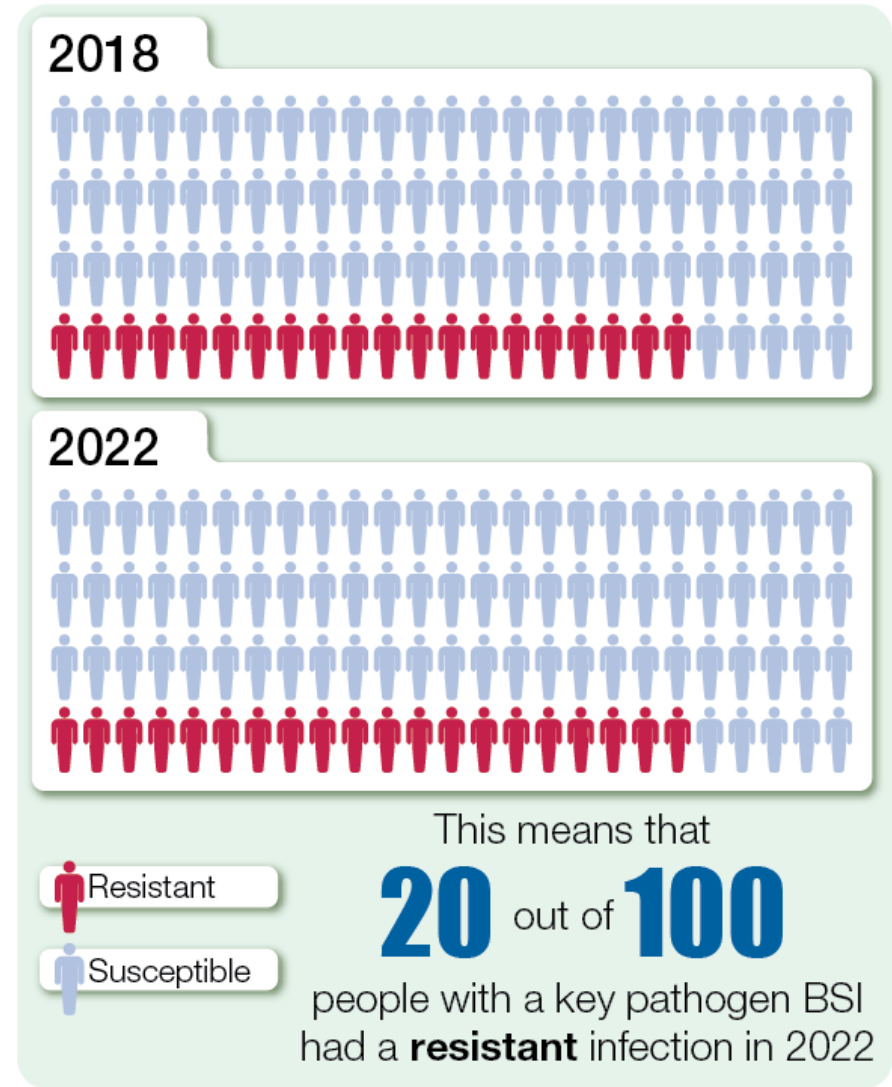
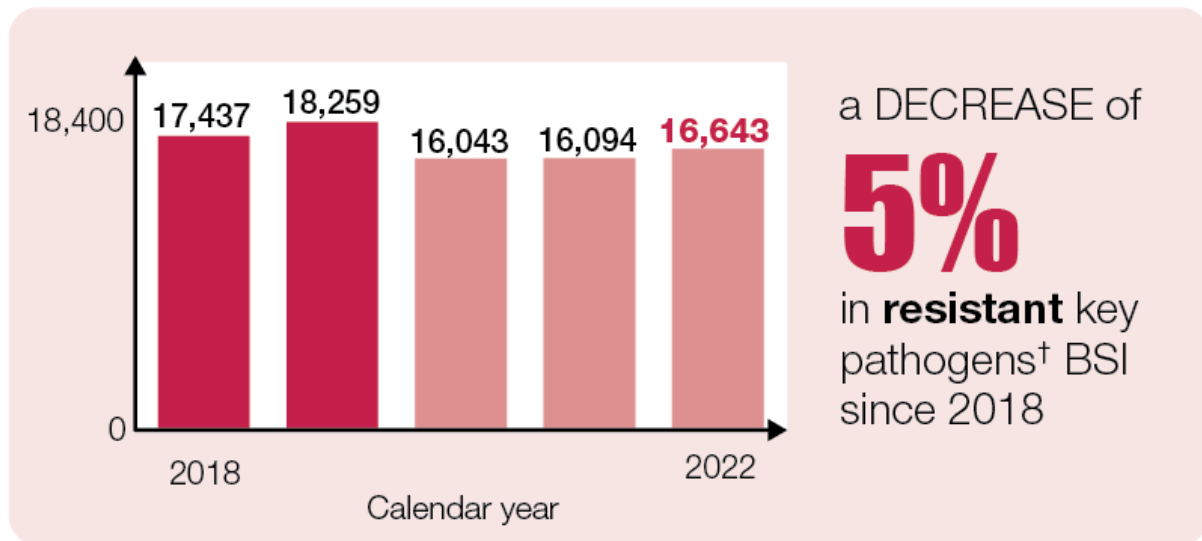
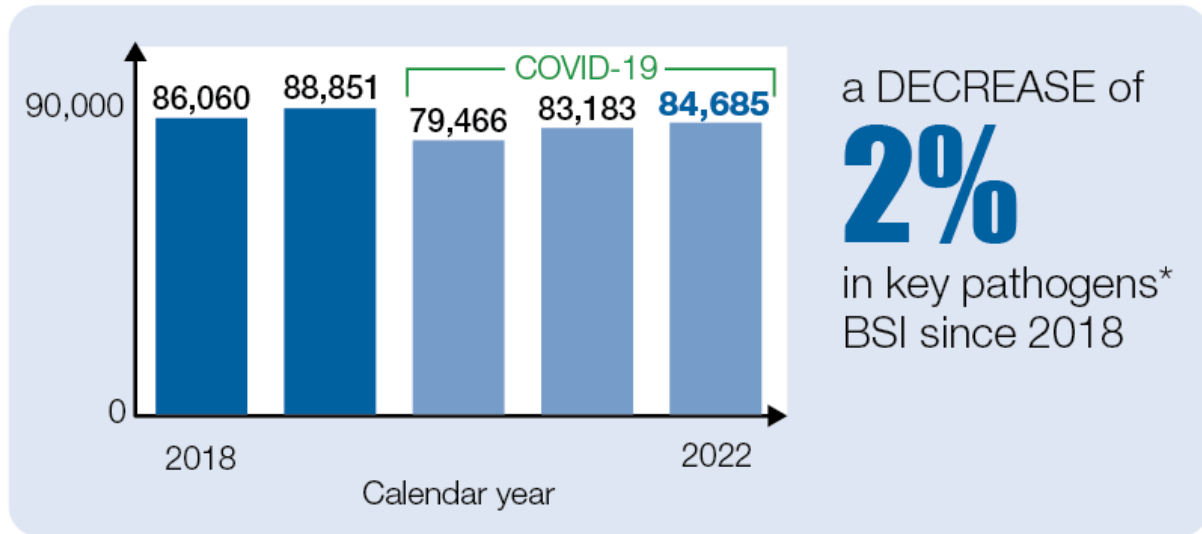


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Chapter 2: Antimicrobial resistance (AMR)

English surveillance programme for antimicrobial utilisation and resistance (ESPAUR 2023)

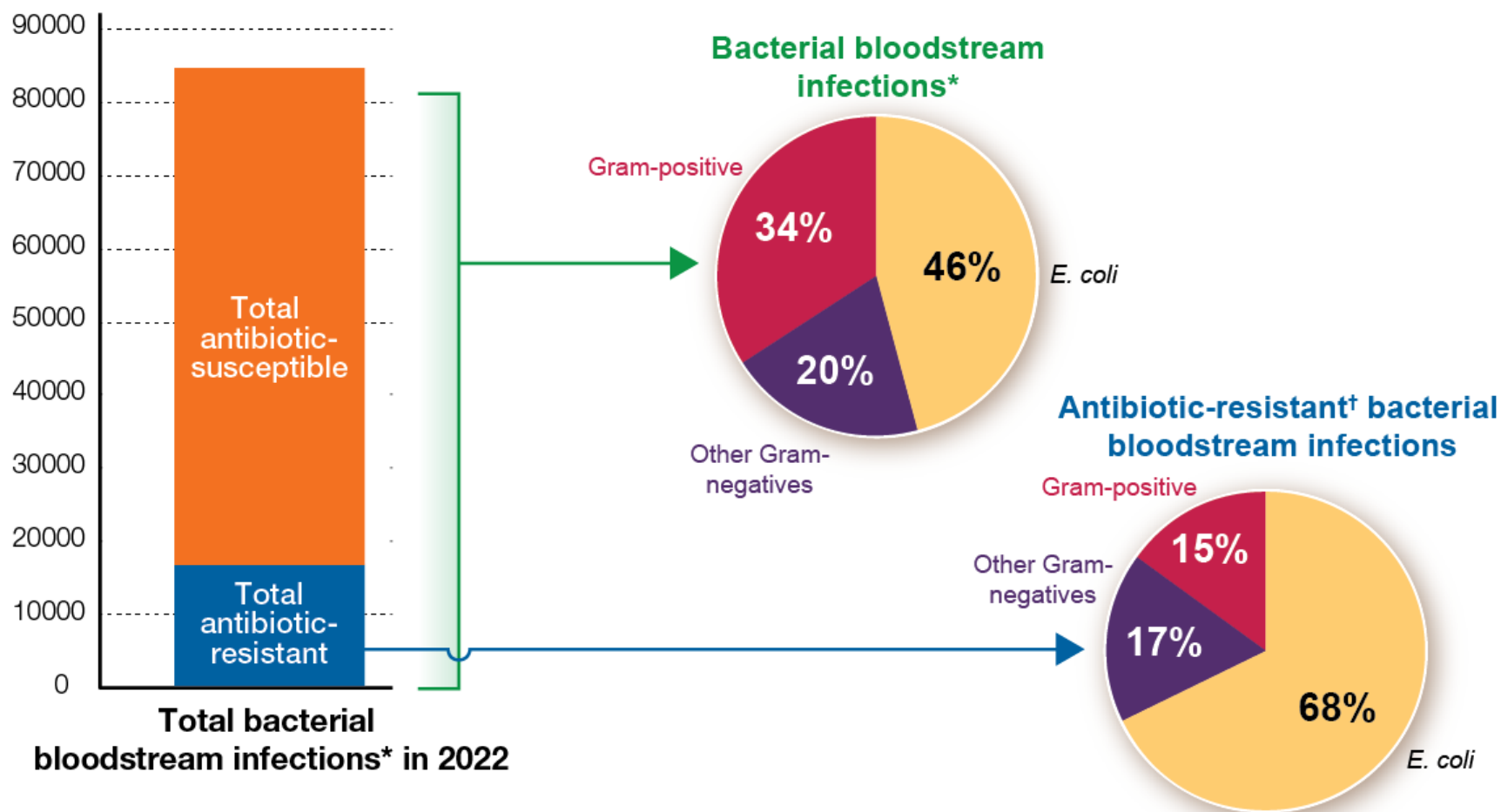
The burden of bloodstream infections (BSIs) and resistant BSIs



* key pathogens include: *E. coli*, *K. pneumoniae*, *K. oxytoca*, *Acinetobacter* spp., *Pseudomonas* spp., *Enterococcus* spp., *S. aureus* and *S. pneumoniae*.

† *E. coli*, *K pneumoniae* and *K. oxytoca*: resistant to any of: carbapenems, third-generation cephalosporin, aminoglycosides or fluoroquinolones; *Acinetobacter* spp: resistant to aminoglycosides and fluoroquinolones, or carbapenems; *Pseudomonas* spp. resistant to three or more antimicrobial groups, or carbapenems; *Enterococcus* spp. resistant to glycopeptides; *S. aureus* resistant to meticillin; *S. pneumoniae* resistant to penicillin and macrolides, or penicillin.

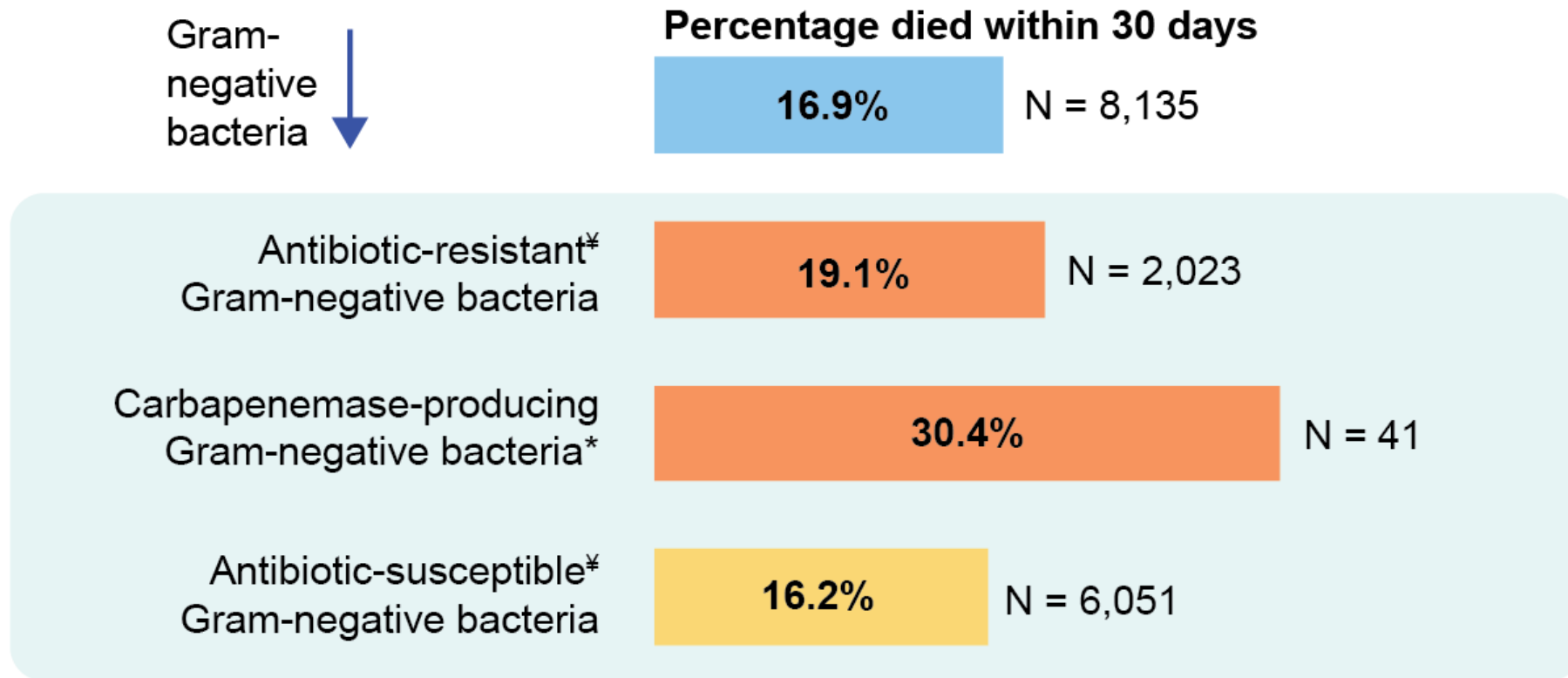
The burden of bacterial bloodstream infections* to critically important antibiotics



* Pathogens include: *E. coli*, *K. pneumoniae*, *K. oxytoca*, *Acinetobacter* spp., *Pseudomonas* spp., *Enterococcus* spp., *S. aureus* and *S. pneumoniae*.

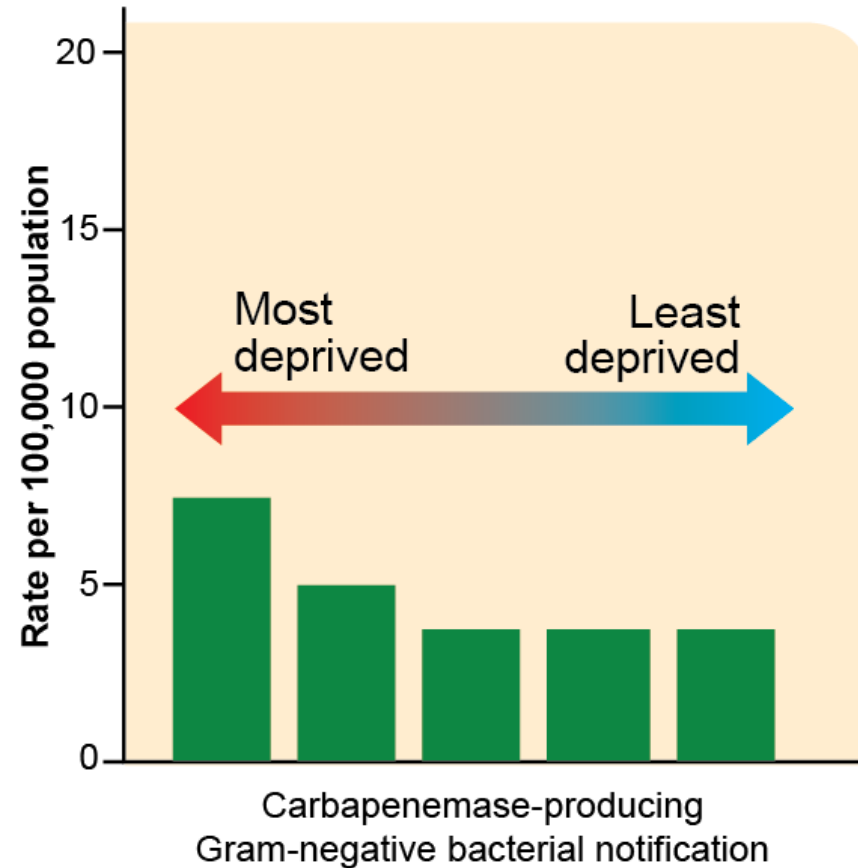
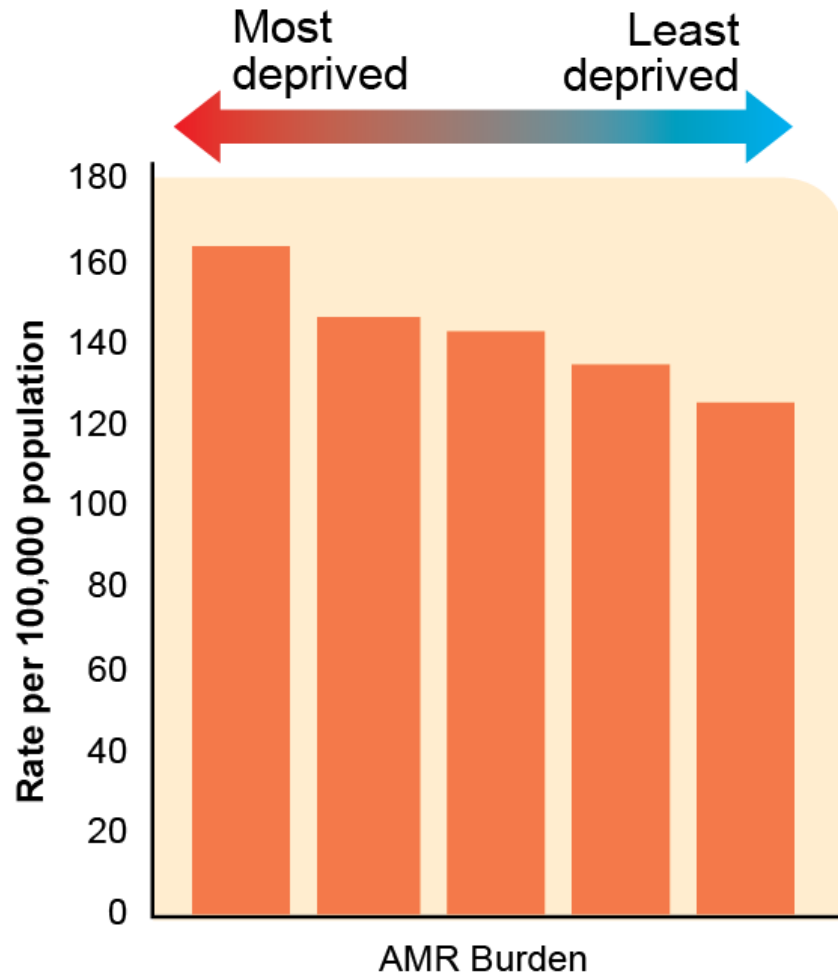
† *E. coli*, *K pneumoniae* and *K. oxytoca*: resistant to any of: carbapenems, third-generation cephalosporin, aminoglycosides or fluoroquinolones; *Acinetobacter* spp: resistant to aminoglycosides and fluoroquinolones, or carbapenems; *Pseudomonas* spp. resistant to three or more antimicrobial groups, or carbapenems; *Enterococcus* spp. resistant to glycopeptides; *S. aureus* resistant to meticillin; *S. pneumoniae* resistant to penicillin and macrolides, or penicillin.

30-day all-cause mortality of patients with Gram-negative bloodstream infections in 2022



*invasive infections; *AMR burden combinations

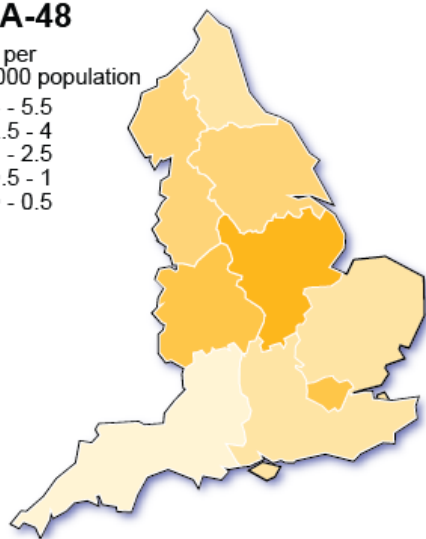
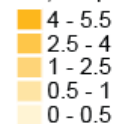
Rate of AMR Burden from BSI and Carbapenemase-producing Gram-negative bacteria notification per 100,000 population by Index of Multiple Deprivation in 2022



Regional notifications per 100,000 population of acquired carbapenemase-producing Gram-negative bacteria by big-5 carbapenemase family in England, 2022

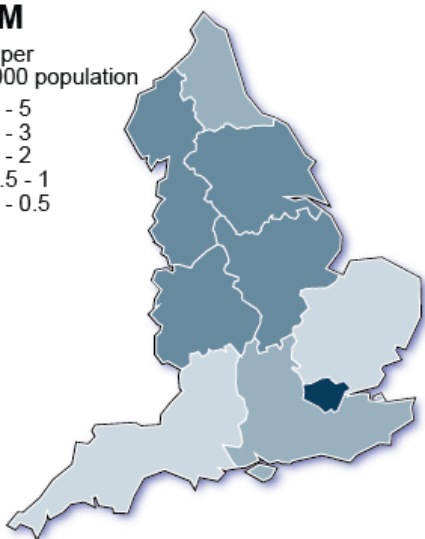
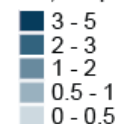
OXA-48

Rate per 100,000 population



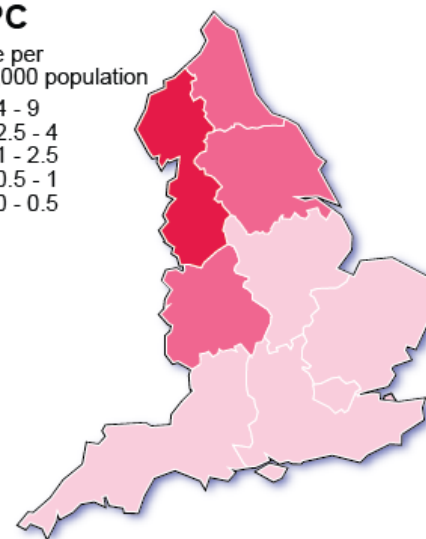
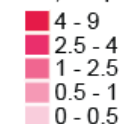
NDM

Rate per 100,000 population



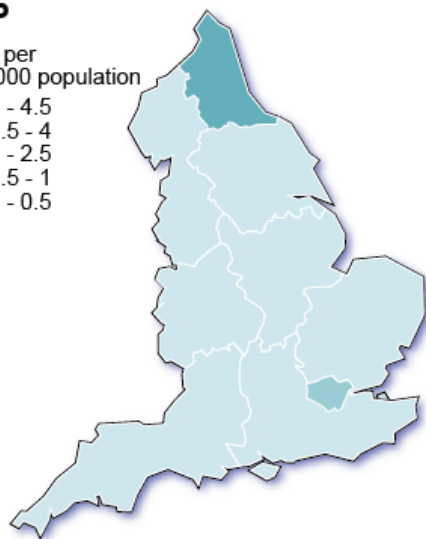
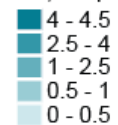
KPC

Rate per 100,000 population



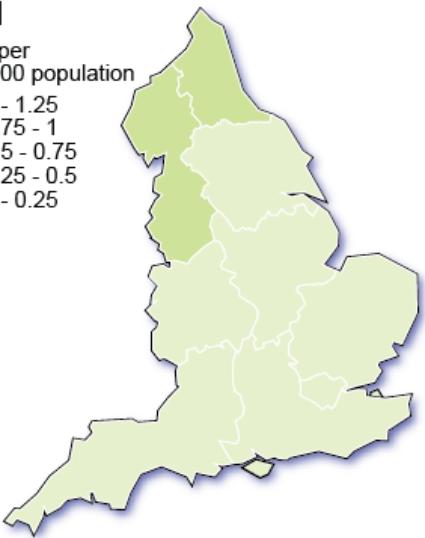
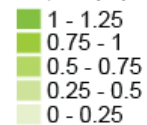
IMP

Rate per 100,000 population



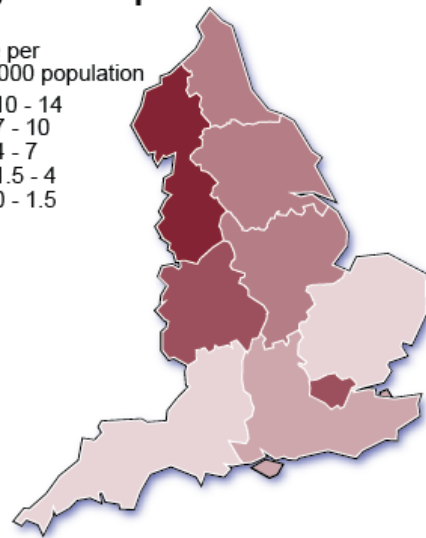
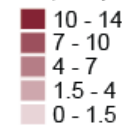
VIM

Rate per 100,000 population



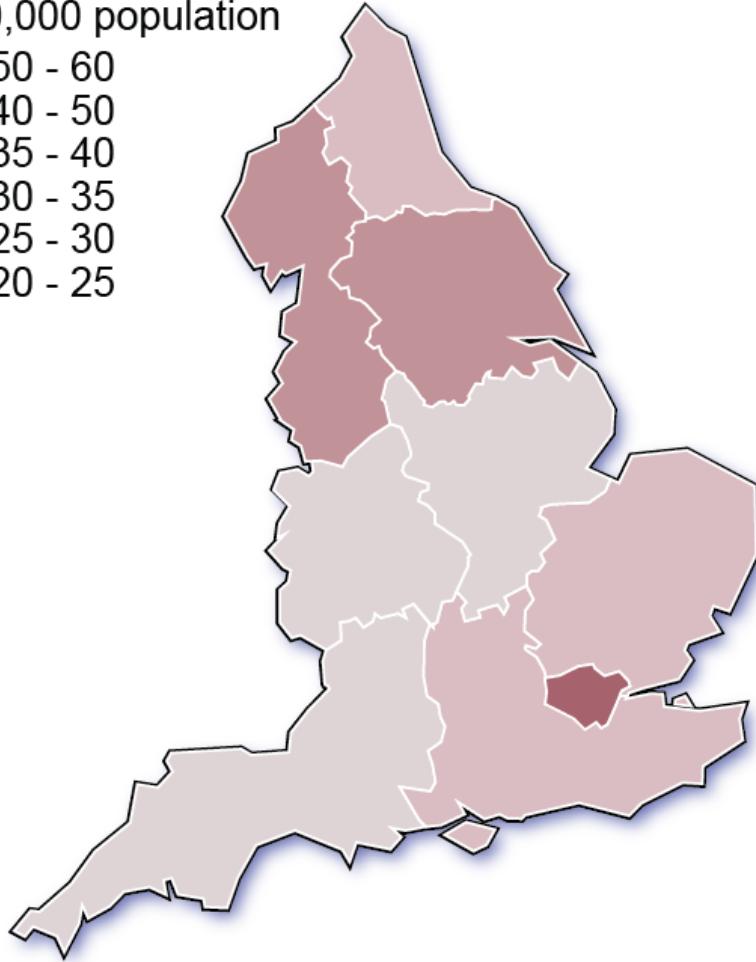
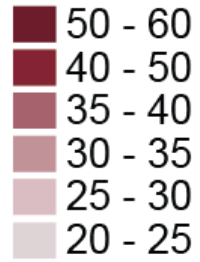
big-5 carbapenemases

Rate per 100,000 population

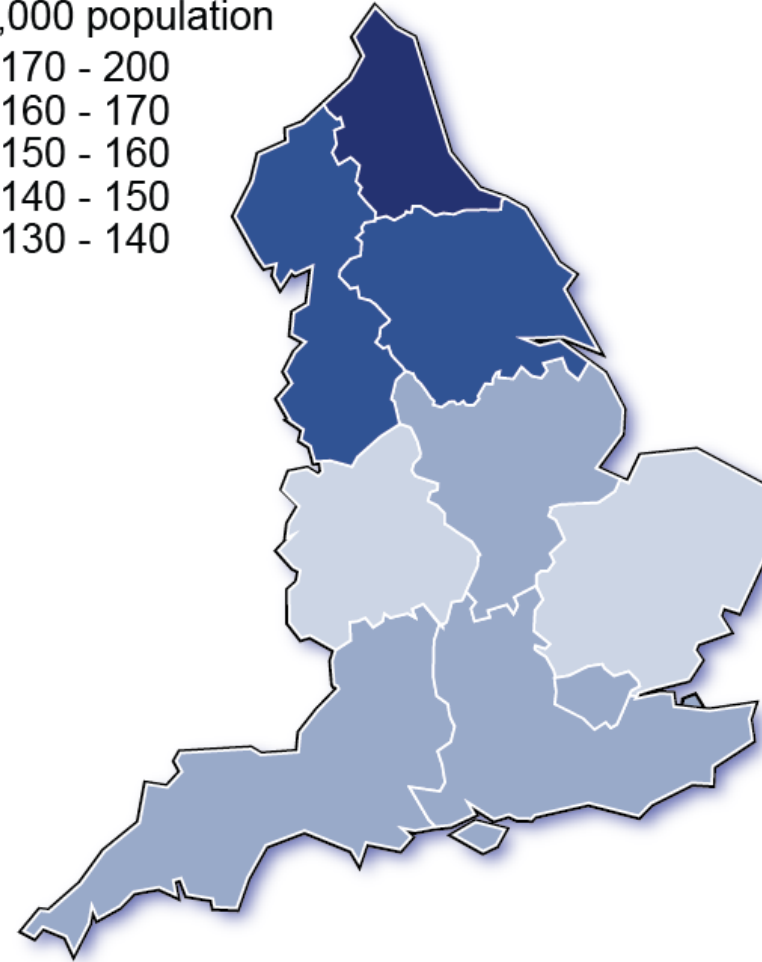
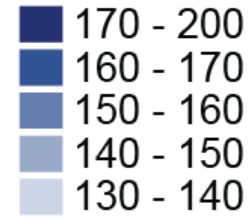


Regional variation in rate per 100,000 population of the estimated burden of antimicrobial resistance (red map) and the estimated numbers of bloodstream infections in England (blue map) in 2022

Rate per
100,000 population

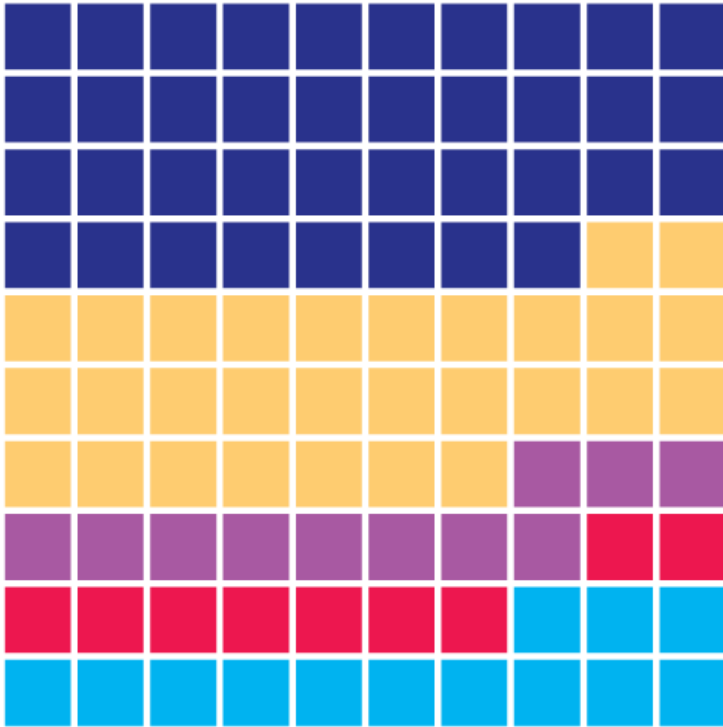


Rate per
100,000 population








Candida species from bloodstream infections in 2022

2018



2022



-  *Candida albicans*
-  *Nakaseomyces glabrata* (formerly *C. glabrata*)
-  *Candida parapsilosis*
-  Other speciated candidaemia*
-  Non-speciated candidaemia*

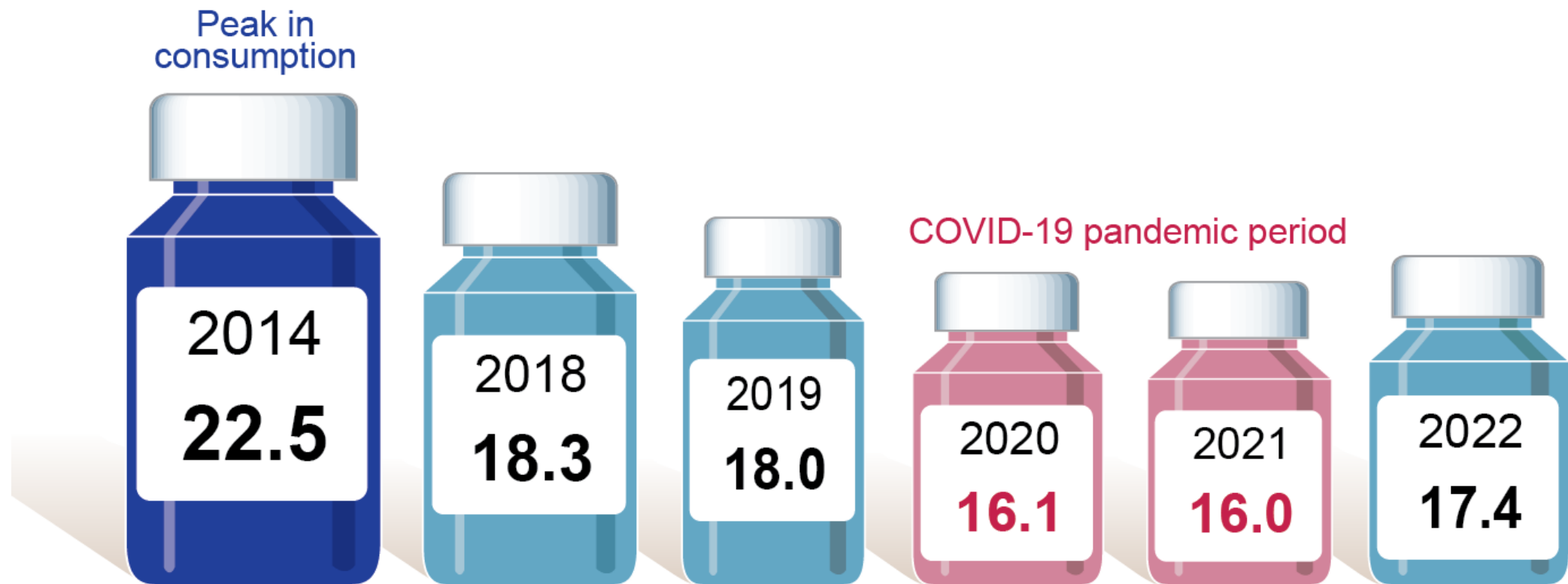


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Chapter 3: Antimicrobial consumption

English surveillance programme for antimicrobial utilisation and resistance (ESPAUR 2023)

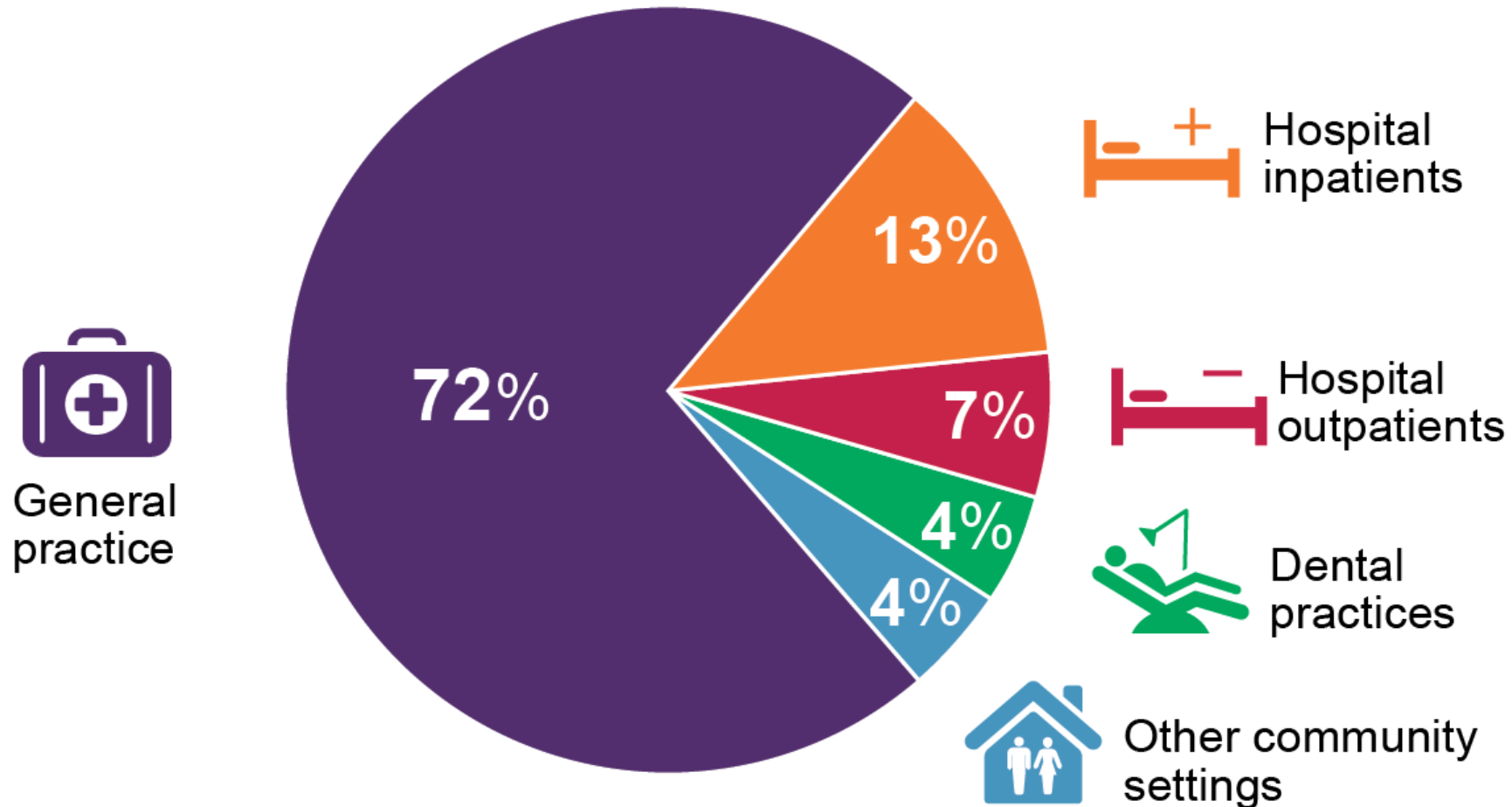
Total consumption of antibiotics continued to decline



(DDDs per 1,000 inhabitants per day)

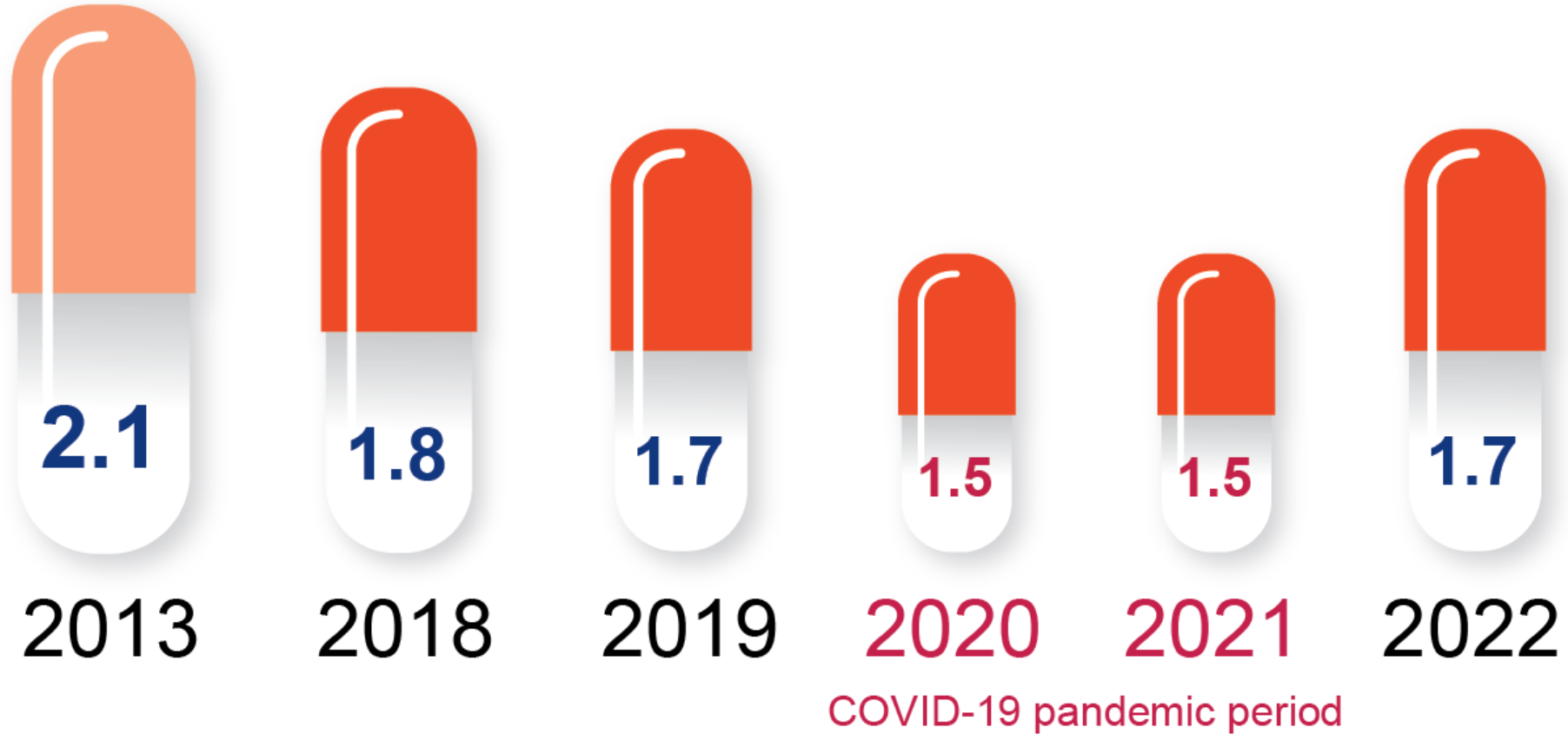
Total antibiotic consumption by prescriber setting as proportion of overall prescribing, England 2022

Who is prescribing?



Antibiotic items prescribed in primary care is now at pre-pandemic 2019 levels

Peak in consumption

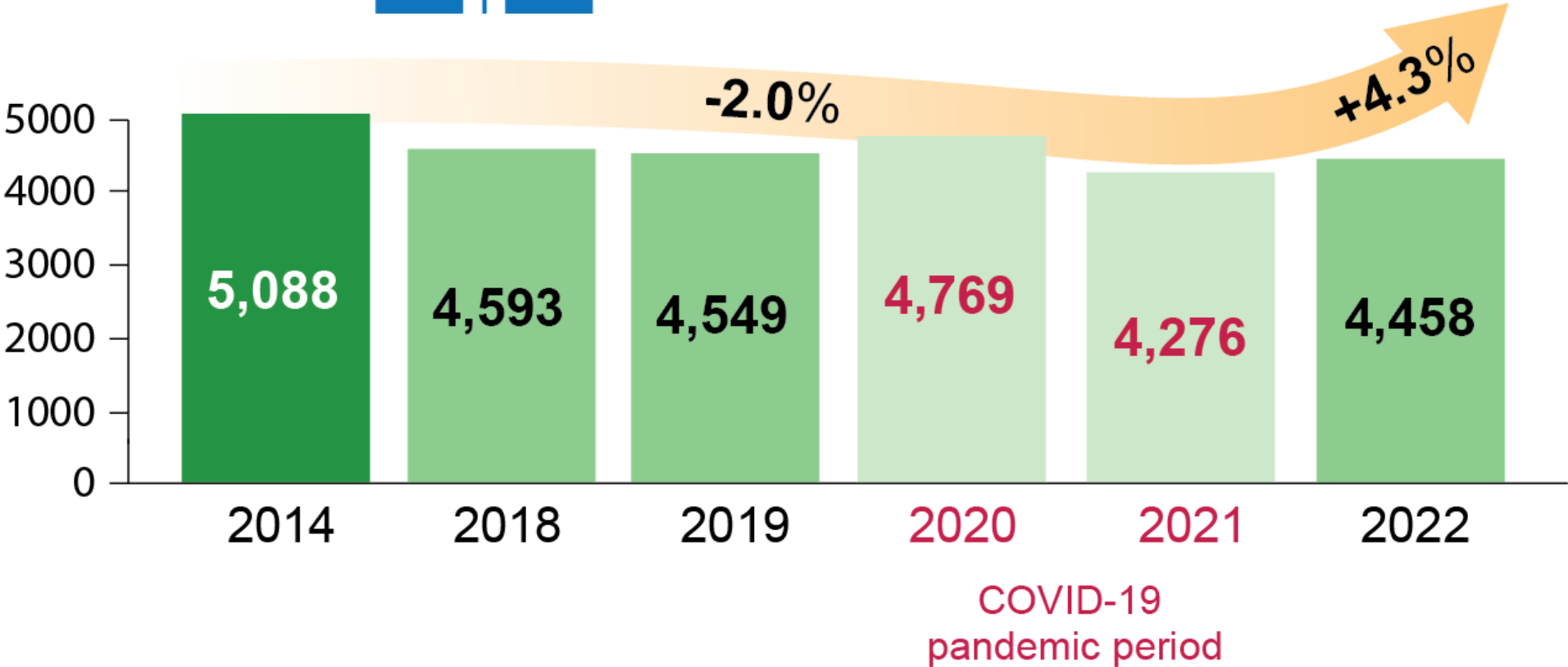


(Items per 1,000 inhabitants per day)

Antibiotic prescribing increased in secondary care



DDDs per 1,000 admissions



Being AWaRe

Access



First and second choice antibiotics for treating the most common infections.

Includes: amoxicillin for pneumonia and penicillin for Streptococcal sore throat

Watch



Antibiotics with higher resistance potential, that should only be prescribed for specific indications.

Includes: ciprofloxacin in the treatment of complicated UTI

Reserve

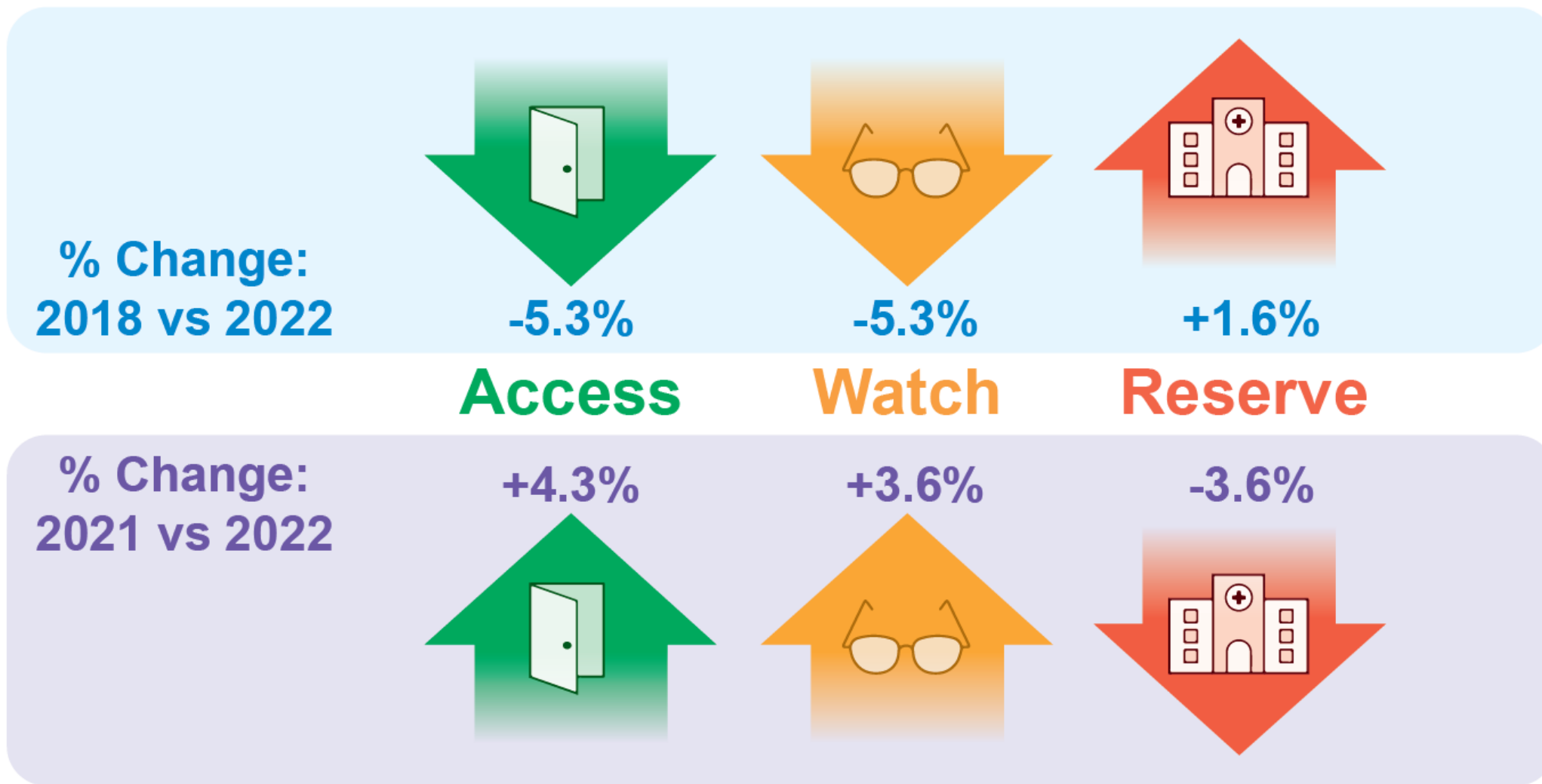


Antibiotics that are last-resort options that should only be used in severe circumstances, when other options have failed.

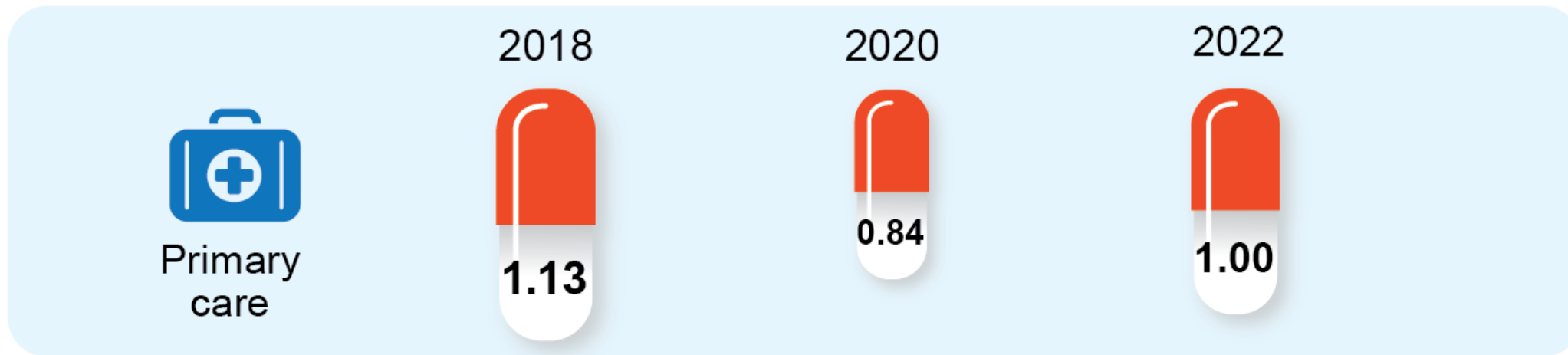
Includes: colistin and IV parenteral fosfomycin

Change in AWaRe consumption: 2021 vs 2022 compared to 2018 vs 2022

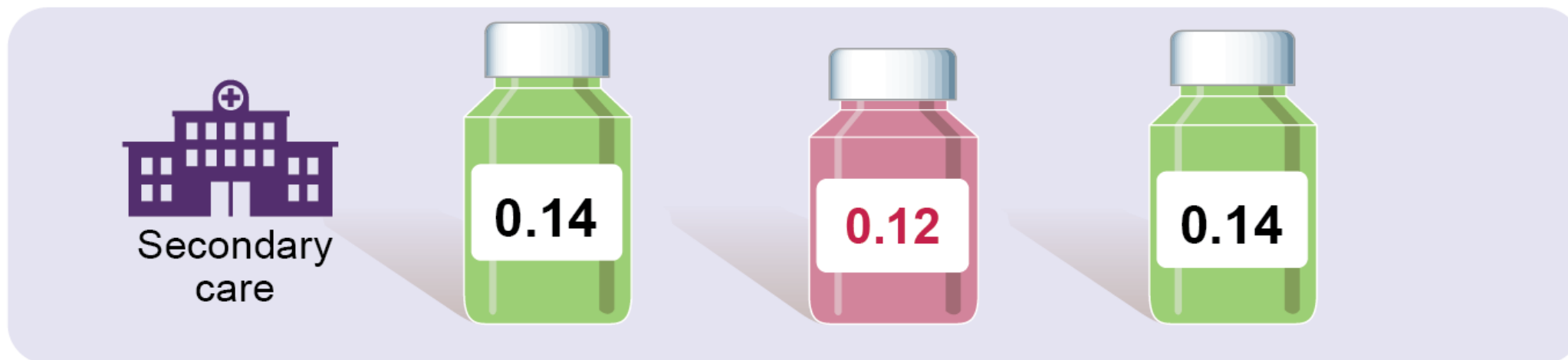
(% change in DDDs per 1,000 admissions)



Consumption of antifungals in primary and secondary care



COVID-19
pandemic period



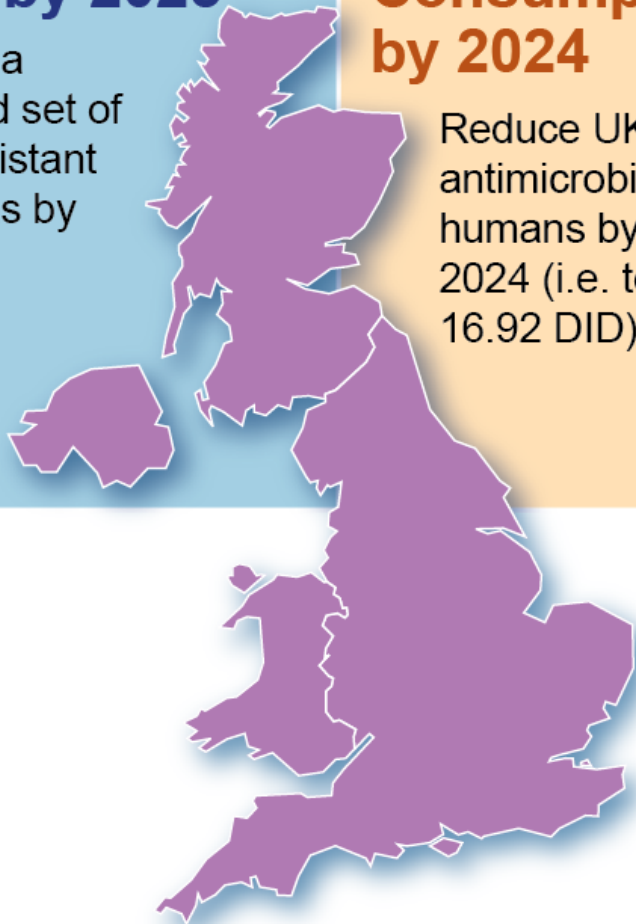
(DDD per 1,000 inhabitants per day)

UK National Action Plan ambitions and England Progress

United Kingdom

AMR by 2025

Reduce a specified set of drug resistant infections by 10%



Consumption by 2024

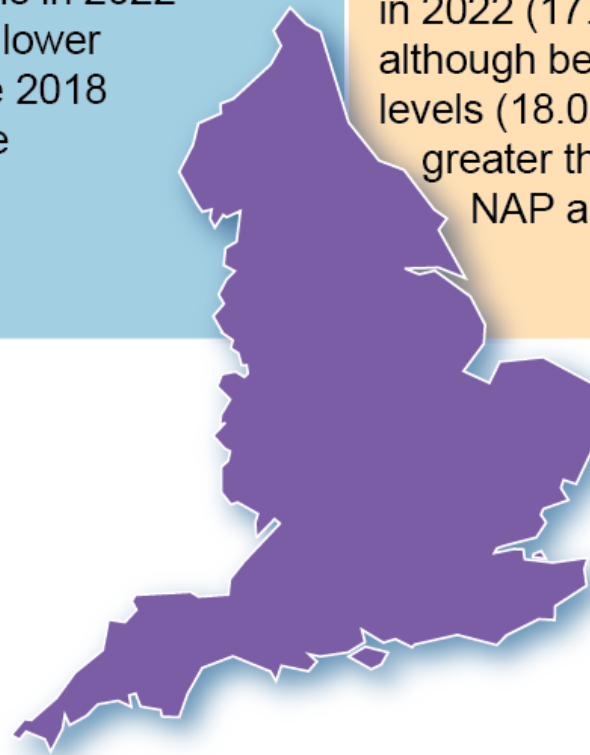
Reduce UK antimicrobial use in humans by 15% by 2024 (i.e. to/below 16.92 DID)



England

AMR in 2022

The estimated number of severe infections in 2022 is 1.6% lower than the 2018 baseline



Consumption in 2022

Total antibiotic use in 2022 (17.35 DID), although below 2019 levels (18.03 DID), is greater than the NAP ambition

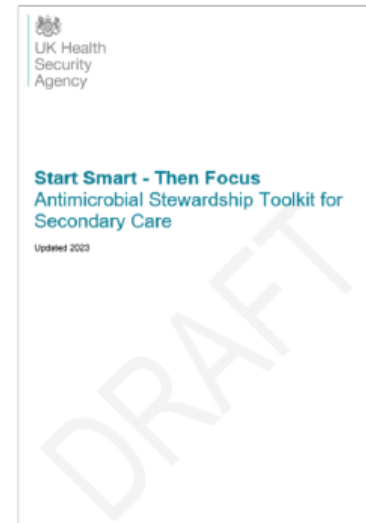
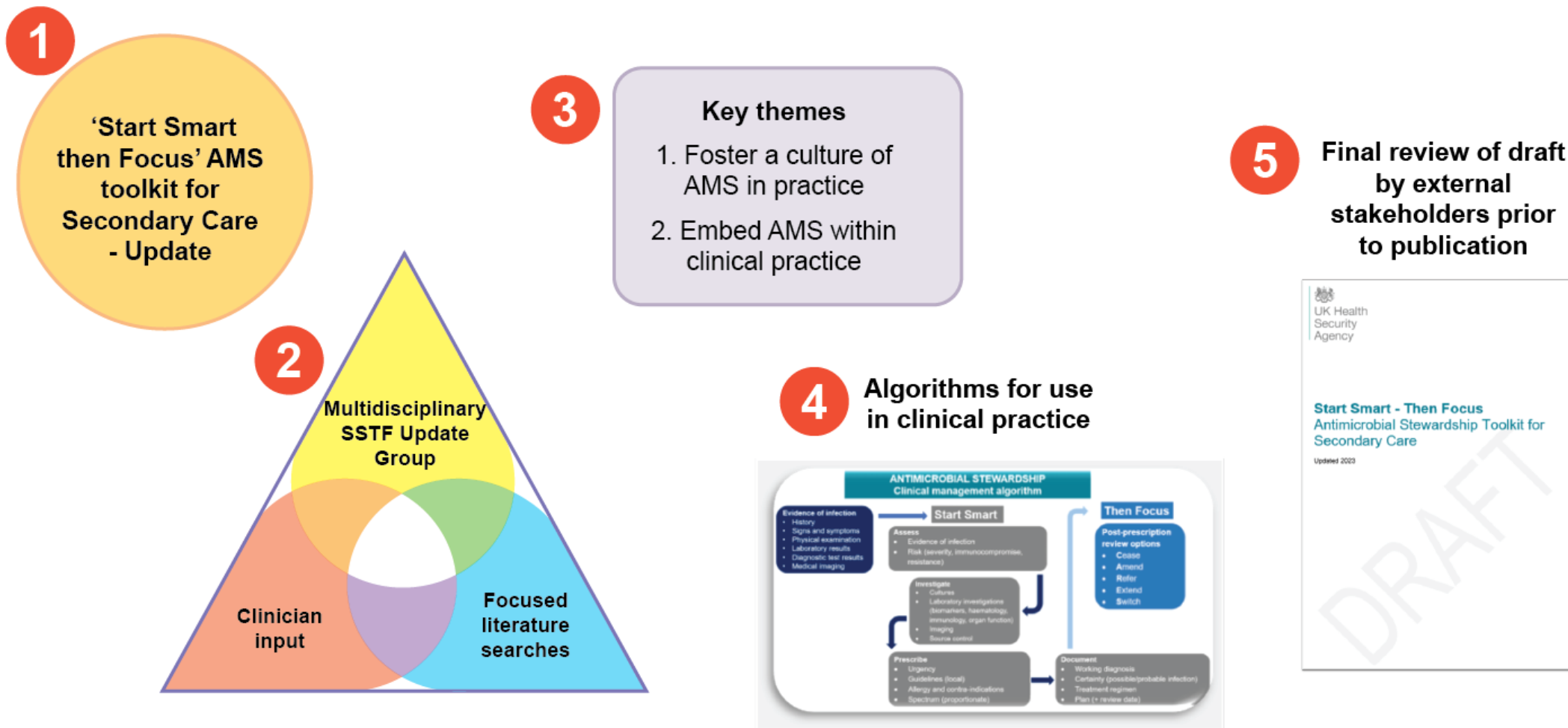


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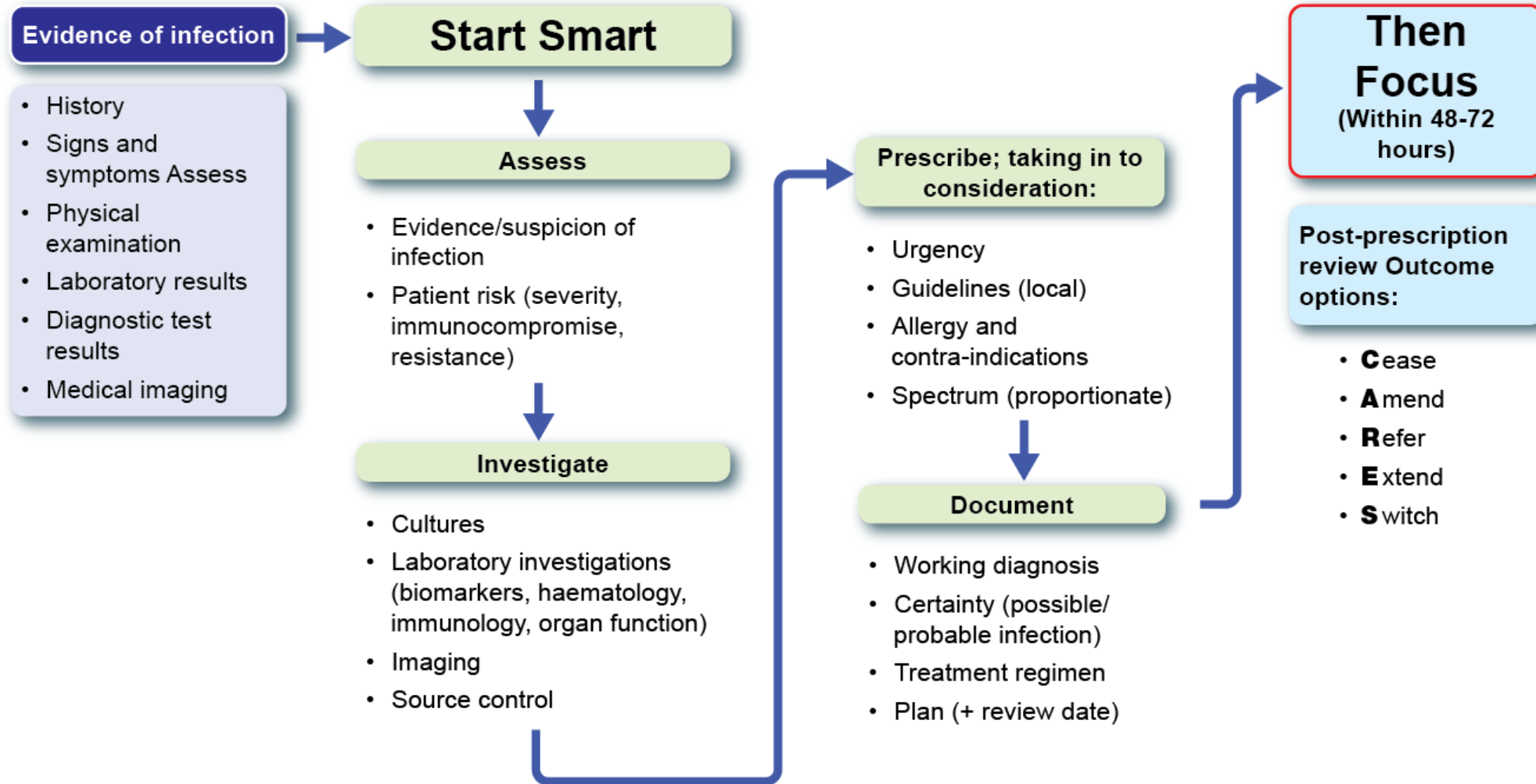
Chapter 4: Antimicrobial stewardship

English surveillance programme for antimicrobial utilisation and resistance (ESPAUR 2023)

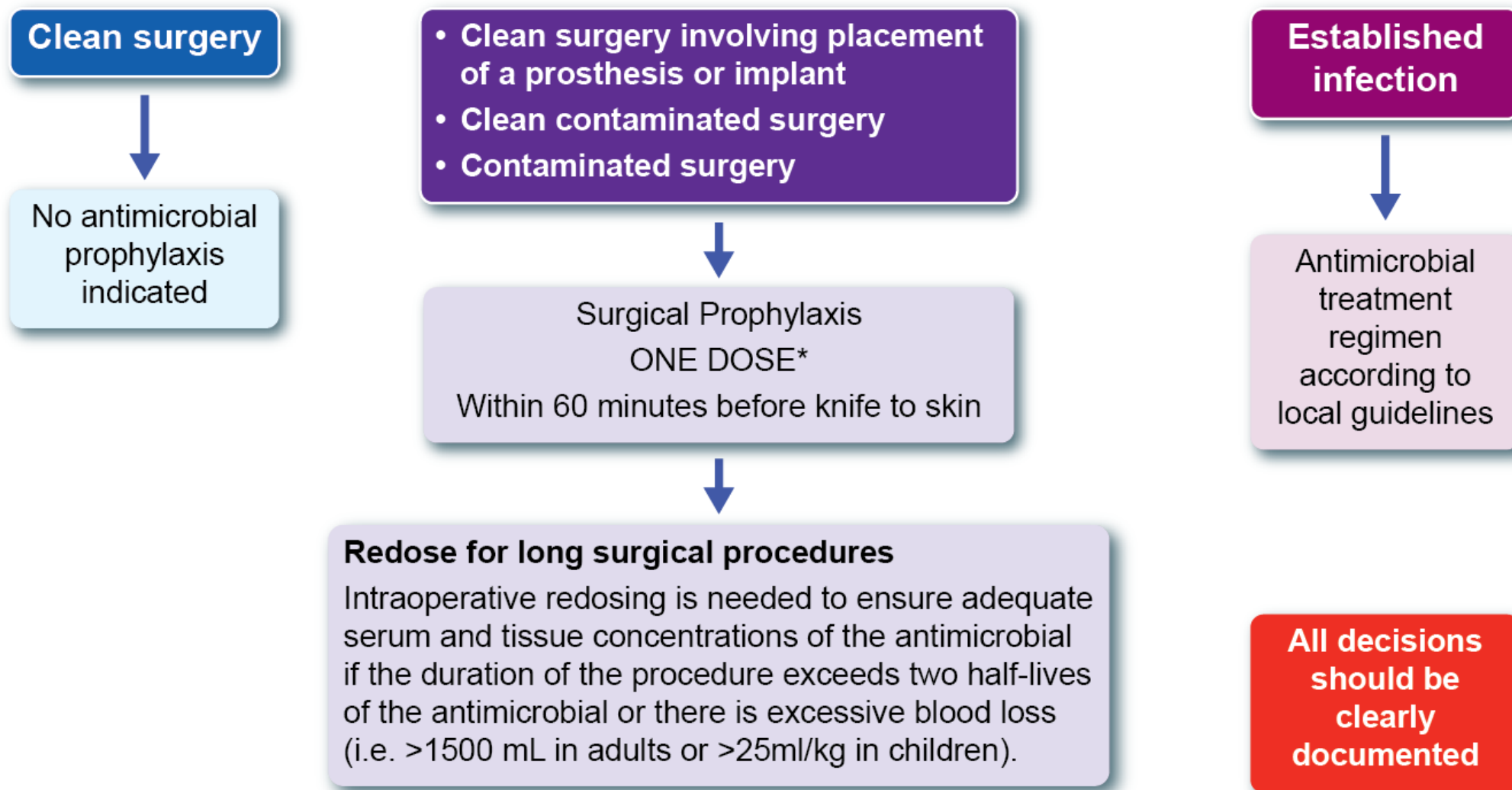
SSTF AMS Toolkit: Updating the 'Start Smart then Focus' (SSTF) Antimicrobial Stewardship (AMS) toolkit for Secondary Care



Antimicrobial stewardship: Start Smart then Focus Clinical management algorithm



Antimicrobial stewardship: Surgical prophylaxis algorithm



*In some cases, such as surgery involving implant placement, 24 hours of antimicrobial prophylaxis may be required

TARGET antibiotics toolkit activities 2022 to 2023



New community pharmacy resources section on **TARGET website**



www.rcgp.org.uk/targetantibiotics



827 healthcare professionals registered for a webinar on skin infections



Developed **2 'How to...'** resources to support primary care to review long-term antibiotic use



83,170 people used a UTI pre-consultation survey developed by TARGET, supporting clinicians to follow national UTI guidance

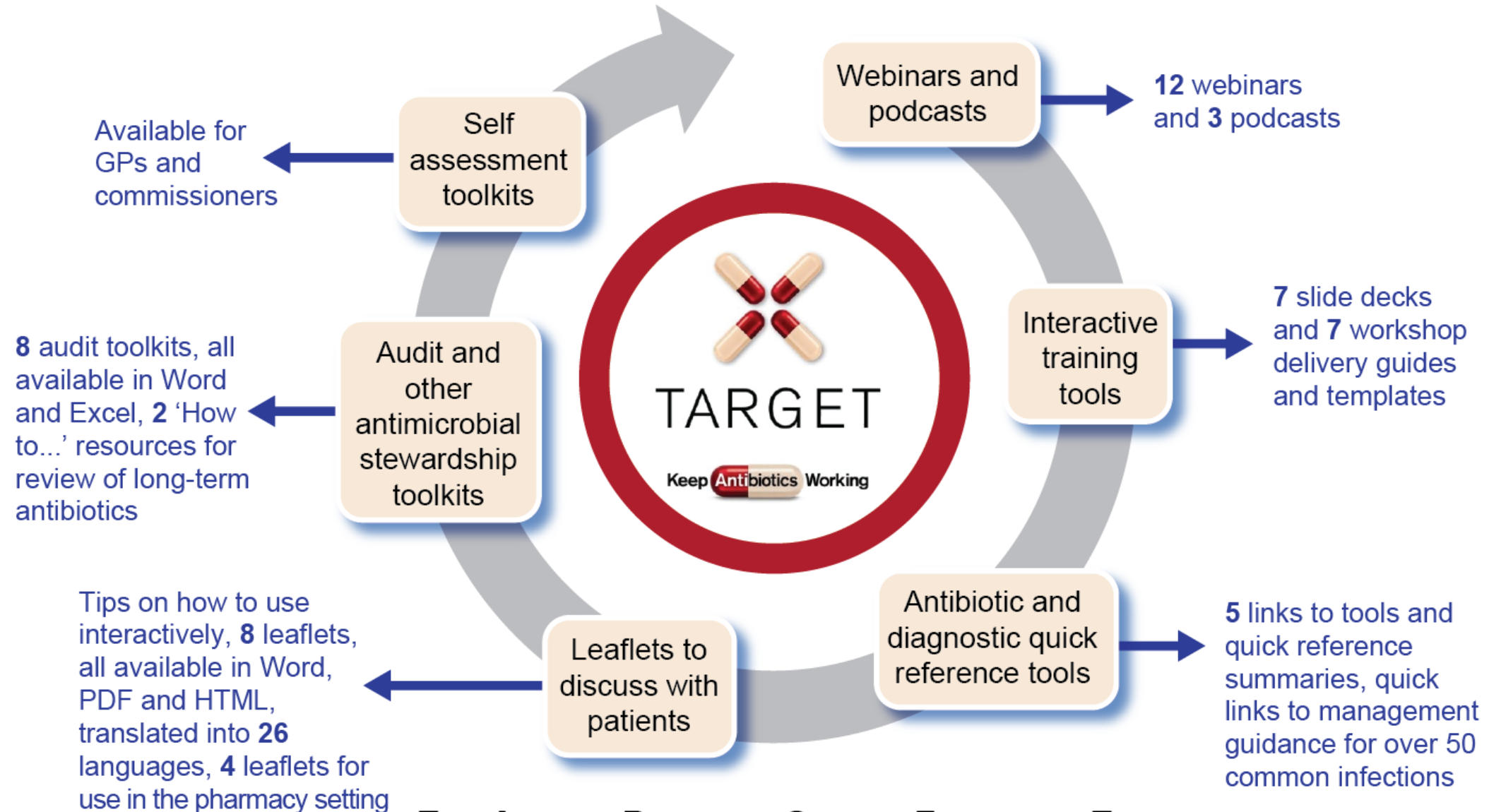


Urinary tract infection and respiratory tract infection leaflets for community pharmacy were accessed **8,014** and **5,941** times respectively



World Antimicrobial Awareness Week campaign reached over **42,000 Royal College of General Practitioners members**

The TARGET Antibiotics Toolkit*



*Treat **A**ntibiotics **R**esponsibly, **G**uidance, **E**ducation and **T**ools

www.rcgp.org.uk/targetantibiotics

Use of TARGET acne 'How to...' toolkit by pharmacy professionals

Pharmacy professionals working in GP Practice survey

- 141 completed initial survey
- 19 completed follow-up survey

Use of the acne 'How to...' resources led to:

- **Increased capability**¹
3.68 (SD 0.40) to 4.11 (SD 0.29); p<0.001
- **Increased opportunity**¹
3.85 (SD 0.24) to 4.08 (SD 0.28); p=0.007
- **Increased motivation**¹
4.35 (SD 0.47) to 4.51 (SD 0.32); p=0.007

Community Pharmacy survey

- 44 pharmacy professionals
- 10 stakeholders

Perceived current and future roles in managing acne:

- **Moderate current confidence in managing acne**¹: 3.75 (SD 1.08)
- **Future roles in managing acne:** Reviewing/prescribing long-term medications
- **Needs identified to undertake future roles:** Training, PGDs, remuneration

Usefulness of the acne 'How to...' resources

Useful to support pharmacy professionals working in general practice¹:

4.08 (SD 0.18) AND

Useful to support pharmacy professionals working in community pharmacy in perceived future roles¹:

4.32 (SD 0.16)

Sections of acne 'How to...' resource rated as very useful:

1. Self-care advice
2. Treatment of acne
3. Flow chart to review antibiotic use
4. Acne clinical scenarios

¹5-point Likert scale used

Assessing the interplay between factors commonly associated with health inequalities, clinical factors, and sepsis incidence and outcomes

Literature review (53 studies)

Deprivation

Lower socioeconomic status
Unemployment

Lower education level

Findings not consistent across studies

Ethnicity

Mixed effects except in pregnancy

Other

Caesarean section delivery
Complications during childbirth
Increase risk of post-partum sepsis

Medically underserved area
Nursing home resident



Data analysis: 300,000 cases.

Deprivation

Largest socioeconomic deprivation

Ethnicity

Patients with non-white ethnicity did not show increased sepsis risk

Frailty

High frailty score

Other clinical factors associated with increased risk of sepsis

Most Deprived

Alcohol problems
COPD
Learning disabilities

Non-white Individuals

Anaemia
Diabetes
Liver disease
Mental illness

Severe Frailty

Anaemia
Heart disease
Parkinson Disease



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Chapter 5: NHS England: improvement and assurance schemes

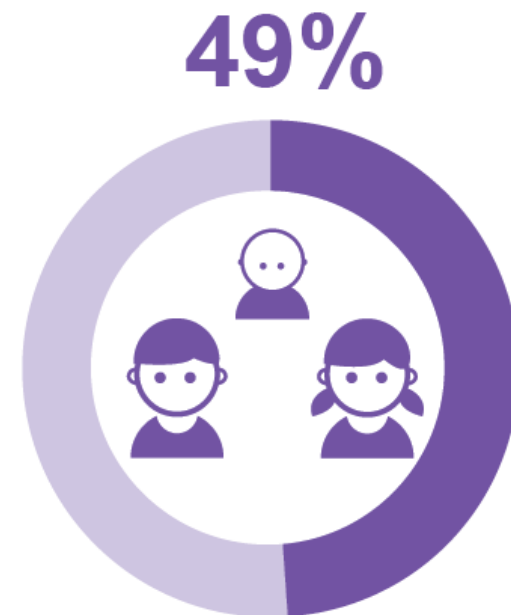
NHSBSA ePACT2 Antimicrobial Stewardship – Children’s dashboard: England, Financial Year 2022-2023



Antibiotic
prescriptions for
children aged 0-14y



Proportion of antibiotic
prescriptions that are
for children aged 0-4y



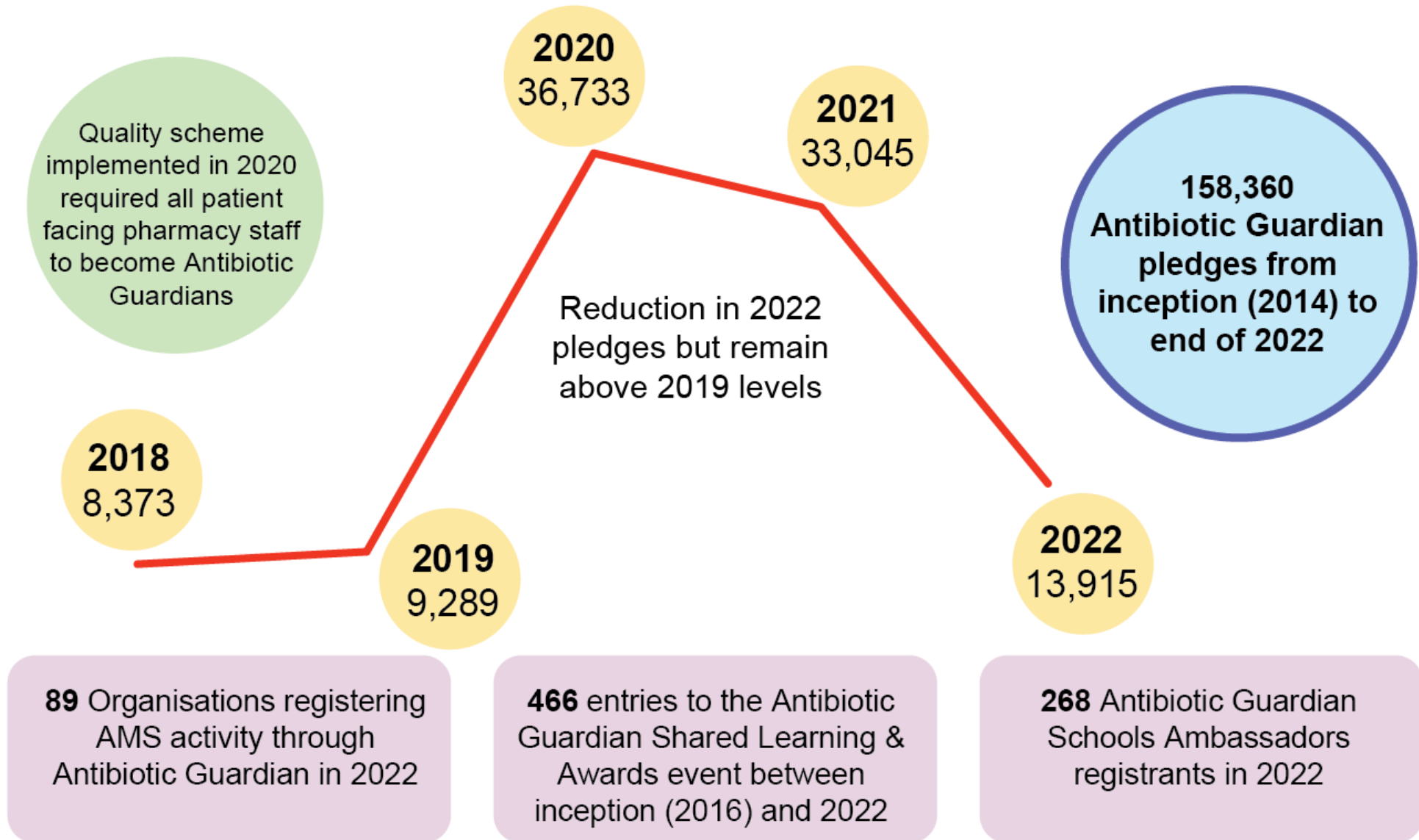
Proportion of all children
aged 0-4y prescribed an
antibiotic



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Chapter 6: Professional and public education and training

Antibiotic Guardian pledges



APS Competency Framework: Updating the national Antimicrobial Prescribing and Stewardship (APS) competency framework

Review of current APS competency framework



Review of alternative prescribing/ stewardship frameworks



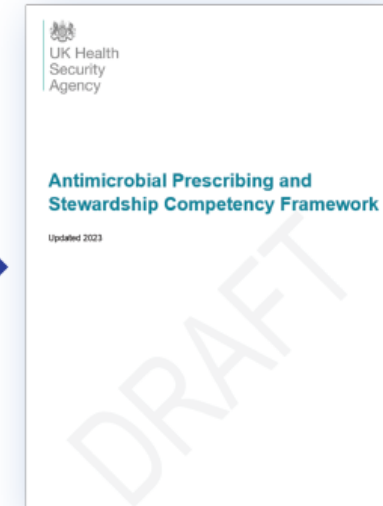
Update process

Complete list of potential domains, statements, and descriptors compiled for review by experts

Review survey received responses from 59 multidisciplinary professionals

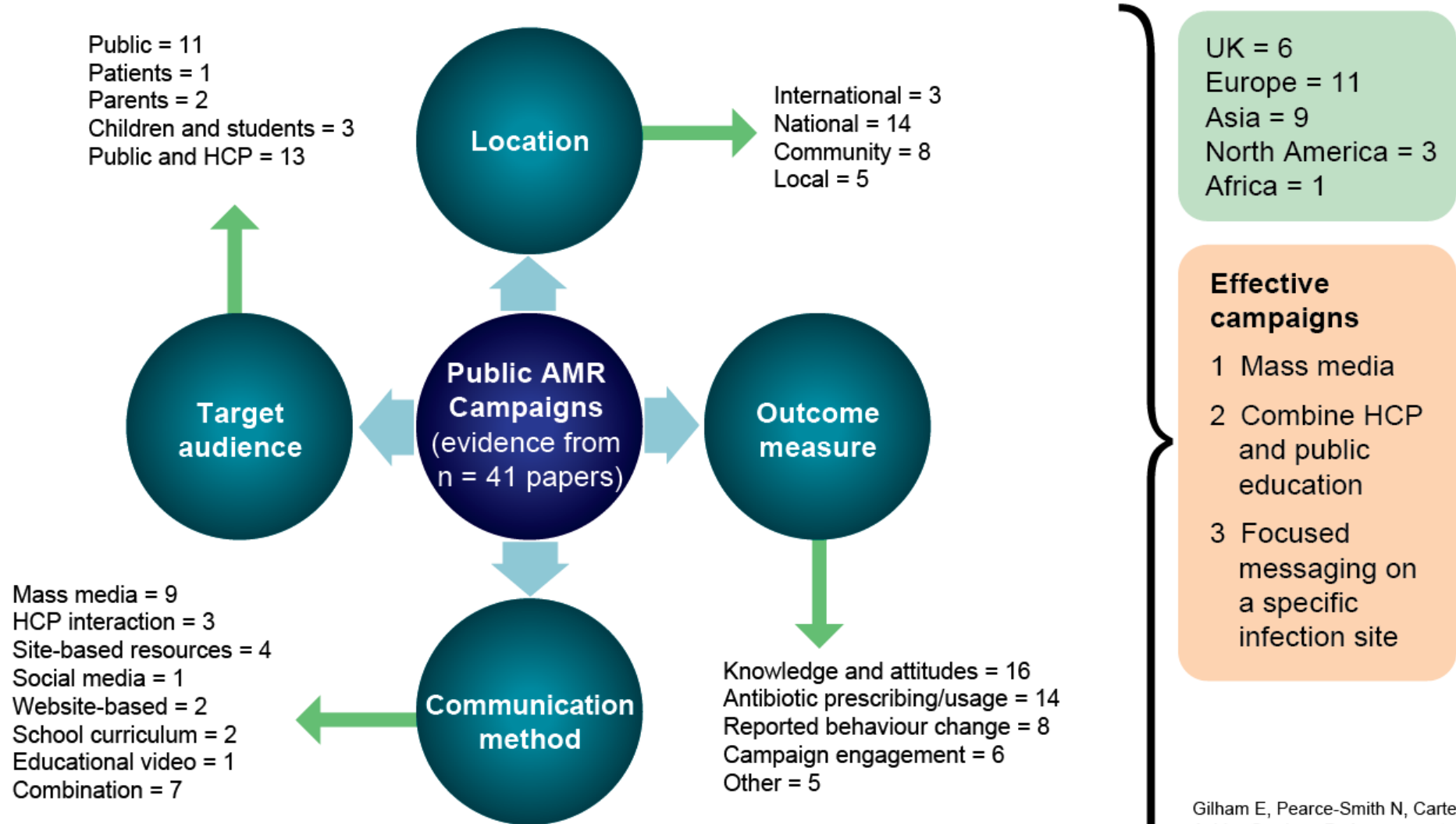
Majority of domains, statements, and descriptors reached consensus for addition to APS competency framework

Draft APS competency framework produced based on results



Final review of draft by external stakeholders prior to publication

Assessment of global antimicrobial resistance campaigns conducted to alter public awareness and antimicrobial use behaviours: a rapid systemic review (PROSPERO 2022 CRD42022371142)



Gilham E, Pearce-Smith N, Carter V, Ashiru-Oredope D, Assessment of global antimicrobial resistance campaigns conducted to alter public awareness and antimicrobial use behaviours: a rapid systematic review. 2023

AMS interventions to provide wrap around support for the public and healthcare professionals

