

**SUPPORTING IMPROVEMENT IN ANTIBIOTIC PRESCRIBING IN PRIMARY CARE:
REDUCING TOTAL ANTIBIOTIC USE THROUGH A NATIONAL QUALITY INDICATOR**

Background

The initial priority for SAPG following its establishment in 2008 was to drive reduction in the use of broad spectrum antibiotics that increase the risk of *Clostridium difficile* infection (CDI). NHS board Antimicrobial Management Teams (AMTs) have developed prescribing guidelines for first line empirical treatment of infections commonly encountered in primary care based on an evidence-based template approved by SAPG. Initiatives to change prescribing behaviour through encouraging compliance with local prescribing guidelines have been successful: 400,000 (47.5%) fewer items for high risk antibiotics (cephalosporins, fluoroquinolones and co-amoxiclav) have been dispensed in Scotland since 2008.

SAPG recognise the importance of reducing total antibiotic use through reducing unnecessary prescribing as a key aspect of antimicrobial stewardship. The key area for reduction in antibiotic use is in the management of self-limiting respiratory tract infections (RTI) as a quarter of the population will visit their GP with a RTI each year and resulting in 60% of all antibiotic prescriptions [1].

A reduction in the unnecessary use of antibiotics will yield the following benefits:

- Reduction in the development of antimicrobial resistance at population and individual level,
- Reduction in CDI,
- Reduction in avoidable harm through fewer adverse effects,
- Reduction the medicalisation of self limiting conditions and the associated GP workload,
- Reduction of NHS prescribing costs.

Development of a quality indicator for total antibiotic use

In August 2011, the HAI Taskforce National Advisory Group supported a proposal from SAPG to improve the quality of antibiotic prescribing in Scotland measured through the establishment of a national standard for total antibiotic use in primary care. After discussion total use of antibiotics was introduced in April 2012 as one of ten National Therapeutic Indicators (NTIs) [2] developed by the Scottish Government Prescribing Efficiency and Productivity work stream.

National data shows that in 2011 the use of systemic antibiotics in primary care was 3.4% higher (162,000 prescription items) than in 2010, following a decreasing trend in the period 2008-2010. As a result of this recent increase SAPG believe the introduction of a national quality indicator for total antibiotic use may provide an additional stimulus to reduce unnecessary prescribing which consequently will reduce the pressure for selection of antimicrobial resistance and other forms of ecological damage associated with antibiotic use. In response to SAPG advice, a new national quality indicator for reduction of total antibiotic prescribing was identified as a key HAI Level 3 indicator for 2013-14 in the CMO CNO Letter issued on 1st May 2013 [3].

The national quality indicator will build on the methodology developed for NTIs as this approach has been accepted by NHS board Medicines Management Advisers and clinicians. This approach establishes a best in class level, set at the 25th percentile of all GP practices in Scotland and acknowledges there is variation in the use of antibiotics across practices. To achieve the quality indicator practices must either achieve an equivalent or lower, prescribing rate to that of the Scottish 25th percentile or achieve an acceptable minimum reduction towards that level. The acceptable minimum level of reduction used in all of the NTIs is defined as a reduction in the number of items/1000 patients/day equivalent to one fifth of the national inter-quartile range.

The quality indicator being introduced in 2013-14 is that antibiotic use, expressed in items/1000/day in at least 50% of practices in each NHS board will be at or below the 25th percentile of Scottish practices or will have made an acceptable move toward that level.

An illustration of how the new quality indicator target level relates to current national prescribing rates and individual board rates is shown in Appendix 1.

The new measure will be introduced as a level 3 indicator for NHS boards from June 2013 (using January – March 2013 data as the baseline) and will replace the current primary care CDI HEAT target indicator (seasonal variation of fluoroquinolones $\leq 5\%$) which was introduced in 2009. Boards are encouraged to continue to monitor seasonal variation of quinolone prescribing and this will continue to be reported at a national level as part of the Primary Care Indicators Report.

References

1. NICE 69: Prescribing of antibiotics for self-limiting respiratory tract infections in adults and children in primary care, 2008
<http://www.nice.org.uk/nicemedia/pdf/CG69FullGuidelineAppendices.pdf>
2. Scottish Government, Edinburgh, April 2012. Scottish Quality Prescribing Initiative: Launch of National Therapeutic Indicators
[http://www.sehd.scot.nhs.uk/pca/PCA2012\(M\)08.pdf](http://www.sehd.scot.nhs.uk/pca/PCA2012(M)08.pdf)
3. Scottish Government, Edinburgh, May 2013. Healthcare Associated Infection (HAI) and Antimicrobial Resistance (AMR) Priorities 2013-15
[http://www.sehd.scot.nhs.uk/cm0/CNO\(2013\)02.pdf](http://www.sehd.scot.nhs.uk/cm0/CNO(2013)02.pdf)

Appendix 1 Relating the quality indicator to current prescribing rates

National data on total antibiotic use

Using prescribing data for January to March 2013 for the level for the 25th percentile of all GP practices in Scotland was 1.8 items/1000/day (Figure 1).

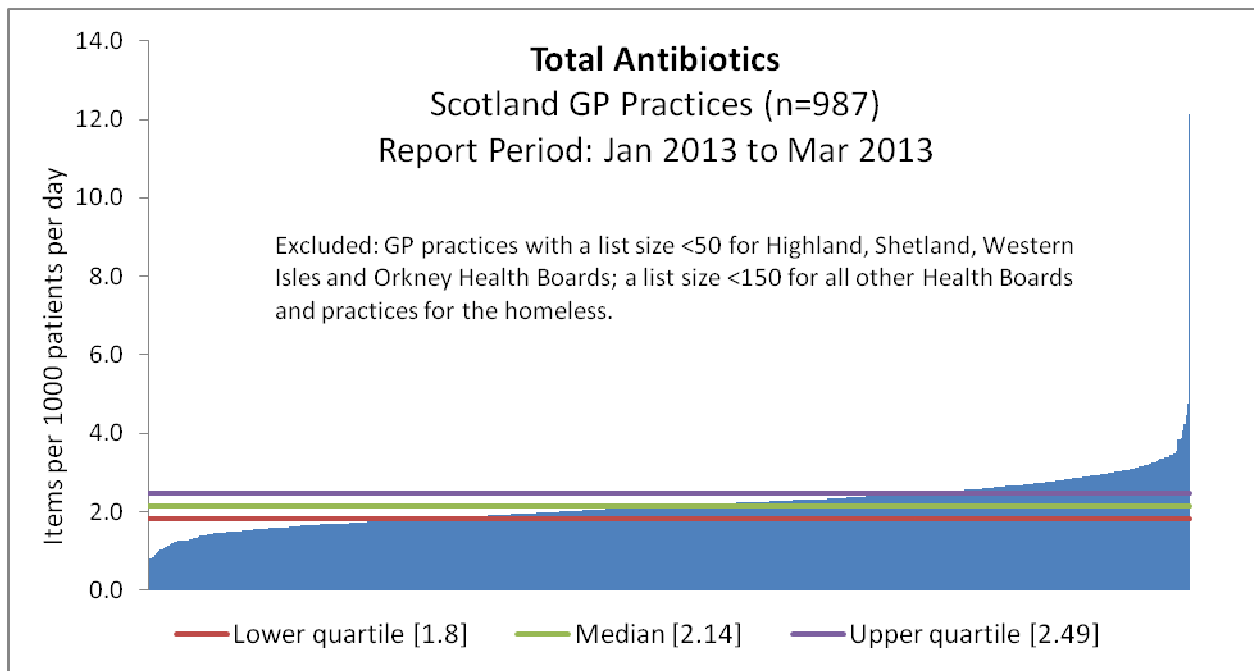


Figure 1. NHS Scotland Total Antibiotics by GP Practice (n=987): Items/ 1,000 patients/ day (Jan-Mar 2013)

Therefore ≤ 1.8 items/1000/day is regarded as the best in class level and becomes the threshold at which practices meet the target level for the quality indicator.

Practices can also meet the target level by making an acceptable move towards this threshold defined as a reduction equivalent to one fifth of the national inter-quartile range. The national inter-quartile range for the baseline period is 0.69 items/1000/day (upper quartile– lower quartile).

The 50% of GP practices currently within the inter-quartile range would need to make a reduction in total antibiotic prescribing of at least 0.14 items/1000/day which translates into a reduction of around 6 to 7% or a reduction of around one antibiotic item in every 16 items prescribed in 2013.

For high prescribing practices (above the upper quartile threshold of 2.49 items/1000/day), the minimum acceptable reduction of one fifth of inter-quartile range represents a reduction of approximately 4% or a reduction of one antibiotic item in every 25 items prescribed in 2013.