Addressing the threat of antimicrobial resistance and recognising the role of diagnostics

There is without doubt a greater recognition now than ever before of the threat posed by antimicrobial resistance (AMR), and of the need to take coordinated global action to help address it. There has also been an increased appreciation of the role that innovative and rapid diagnostics can have in supporting these efforts, and how they can help to inform clinical decision-making and stimulate reductions in levels of inappropriate antibiotic prescribing, a key driver of AMR.

The growing awareness of the important role of diagnostics was reflected within the final report of the UK Government-commissioned Review on AMR, spearheaded by Lord Jim O’Neill. The report included several recommendations designed to help inform governments and policy-makers and specifically called upon countries to mandate the use of rapid diagnostics to inform all antibiotic prescribing by 2020. To help achieve this, the report encouraged health system leaders to consider how incentives could be used to facilitate accelerated uptake of these diagnostic tests. Whilst some of the focus has been around the development of new diagnostics, it is important to recognise that there are already existing diagnostics that can play a significant role in supporting improved antimicrobial stewardship efforts, and that these tests have been used successfully for many years across several mature health systems.

‘I call on the governments of the richest countries to mandate now that by 2020, all antibiotic prescriptions will need to be informed by up-to-date surveillance information and a rapid diagnostic test wherever one exists.’—Lord Jim O’Neill, Final Report and Recommendations, Review on Antimicrobial Resistance

Utilising C-Reactive Protein Point of Care Testing

C-Reactive Protein Point of Care Testing (CRP POCT) represents an example of a proven and cost-effective diagnostic test that already exists and which has been supporting efforts to reduce levels of inappropriate antibiotic prescribing for many years, without increasing the risk of complications or missed diagnoses. Used widely in a number of European countries, and increasingly in the UK, the test involves the measurement of the level of CRP in the patient’s blood, which increases significantly as part of the natural response to bacterial infection. A significantly increased CRP level result may indicate the need for immediate antibiotic treatment. A normal or moderately increased CRP level may support a diagnosis of viral or self-limiting infection, which provides valuable information to prevent unnecessary antibiotic prescriptions.

Guidance recommending the consideration of CRP POCT

- **NICE Clinical Guideline 91**: Infection prevention and control [April 2014]²
- **NICE Guideline 15**: Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use [August 2015]³
- **TARGET Antibiotics Toolkit**: Joint Public Health England and Royal College of General Practitioner resource⁴

NICE’s **Quality Standard on infection prevention and control** [April 2014] also recommends that in order to help prevent the development of antibiotic resistance, antibiotics are prescribed only when needed and to review the continued need for them.⁵
Accelerated uptake of CRP POCT

CRP POCT is still not as widely used within the UK compared to a number of other European countries, such as in the Netherlands and across Scandinavia, where diagnostic testing forms a routine part of clinical practice and has helped to reduce respective levels of antibiotic prescribing. Recent years however have seen a more progressive approach on the use of diagnostic testing adopted across the UK, and the use of CRP POCT has been increasingly incorporated within both national and local antimicrobial stewardship strategies.

‘The patient is the ‘great winner’ with CRP POCT. Management decisions are more evidence-based, the service is much better—faster and more convenient— and there is a greater likelihood of appropriate shared-decision making with skilled HCPs.’ -Rogier Hopstaken, a GP from Utrecht, the Netherlands and POCT expert

Wales

In March 2016, the Welsh Government set out in its Delivery Plan on tackling antimicrobial resistance a specific recommendation to implement CRP POCT at a national level. These plans are currently being put in place and further information on the working group and the next steps for the national roll-out are expected to be published shortly.

‘Public Health Wales will lead a multi-agency working group to roll out the use of C-Reactive Protein Point of Care Testing as a prognostic tool in primary care to aid clinical decisions about the appropriateness of prescribing antibiotics.’ -Welsh Government, Together for Health, Tackling antimicrobial resistance and improving antibiotic prescribing

Scotland

As part of its efforts to encourage a reduction in inappropriate antibiotic prescribing for self-limiting respiratory tract infections, in 2016 the Scottish Antimicrobial Prescribing Group (SAPG) developed a proposal to evaluate the feasibility and acceptability of CRP testing in GP practices and unscheduled care settings, which could help to inform wider roll-out of the test in the future.

Case Study: Testing the feasibility and acceptability of CRP POCT in primary care settings in Scotland

Operating across 10 GP practices between November 2015 and February 2016, the pilot assessed both the practicalities of implementing CRP POCT as well as the perceived impact on antibiotic prescribing behaviour. The pilot was supported by training sessions to demonstrate how the test should be carried out and used NICE-recommended testing ranges to inform the treatment options:

- Low CRP (100mg/L) rules out need for antibiotics
- Intermediate (CRP 20 – 100mg/L) use clinical judgement to decide need for antibiotics
- High CRP ( >100mg/L) rules in need for antibiotics

The results were informed by data from 246 individual patient consultations and the results of a questionnaire completed by 15 GPs. Feedback demonstrated that:

- All respondents found it easy to identify patients and one commented that it was useful to determine how serious the LRTI was to guide management options
- Over 90% of respondents felt that CRP POCT provided reassurance when not prescribing an antibiotic
Almost two-thirds (60%) of GPs thought that CRP POCT was a useful additional tool to support clinical practice

40% of GPs subjectively thought that CRP POCT reduced levels of patient re-attendance

When the test was used, in 64% of cases the outcome was that no prescription for antibiotics was issued

Patient experience of the test appeared to be positive and the majority of respondents would like to see CRP testing used routinely

Commenting on the results of the pilot, Dr Jacqueline Sneddon, Project Lead for the Scottish Antimicrobial Prescribing Group said:

“This pilot has evaluated the feasibility of incorporating CRP POCT within our antimicrobial stewardship efforts across a number of settings in Scotland. As demonstrated by the results, CRP POCT can help support decision-making and provide reassurance to both clinicians and patients when the decision not to prescribe an antibiotic is taken. We hope this study will support wider use of CRP POCT as an additional tool to ensure antibiotics are used prudently.’

The full editorial will be available in the upcoming independent Report published by 4 All of us on November 23rd which will highlight best-practice on AMR from across the UK following the 2016 Antibiotic Guardian Awards. To pre-order a copy of the 40-page Report please email info@4allofus.org.uk