A Small Investment for a Big Saving: Point-of-Care CRP Testing in General Practice

Francis Hunt, Olivia Meakin

Dr. Patricia Abbott – Supervisor

Medical Students, University of Manchester – francis.hunt@student.manchester.ac.uk, olivia.meakin@student.manchester.ac.uk

Brookvale Practice, Hallwood Health Centre, Hospital Way, Runcorn, WA7 2UT

Background

C-Reactive Protein (CRP) is an acute-phase protein that increases in concentration following inflammation, trauma, or infection. It is measured in primary and secondary care to detect pathology, and to aid treatment monitoring.

Point-of-care testing is a form of investigation, performed with the patient present, to support clinical decision making.

Antibiotic prescribing and the cost of unnecessary hospital admissions are both important topics in general practice, given the current financial strain on the NHS, and the antibiotic resistance crisis.

Aims:

1. To assess the impact of point-of-care CRP testing on hospital admissions
2. To assess the impact of point-of-care CRP testing on antibiotic prescribing

Methods

A search of patients who had undergone point-of-care CRP testing at Brookvale Practice in Halton was conducted using EMISWeb.

Those identified then underwent further analysis of:

- The impact of the CRP result on hospital admission
- The impact of the CRP result on antibiotic prescribing

Results

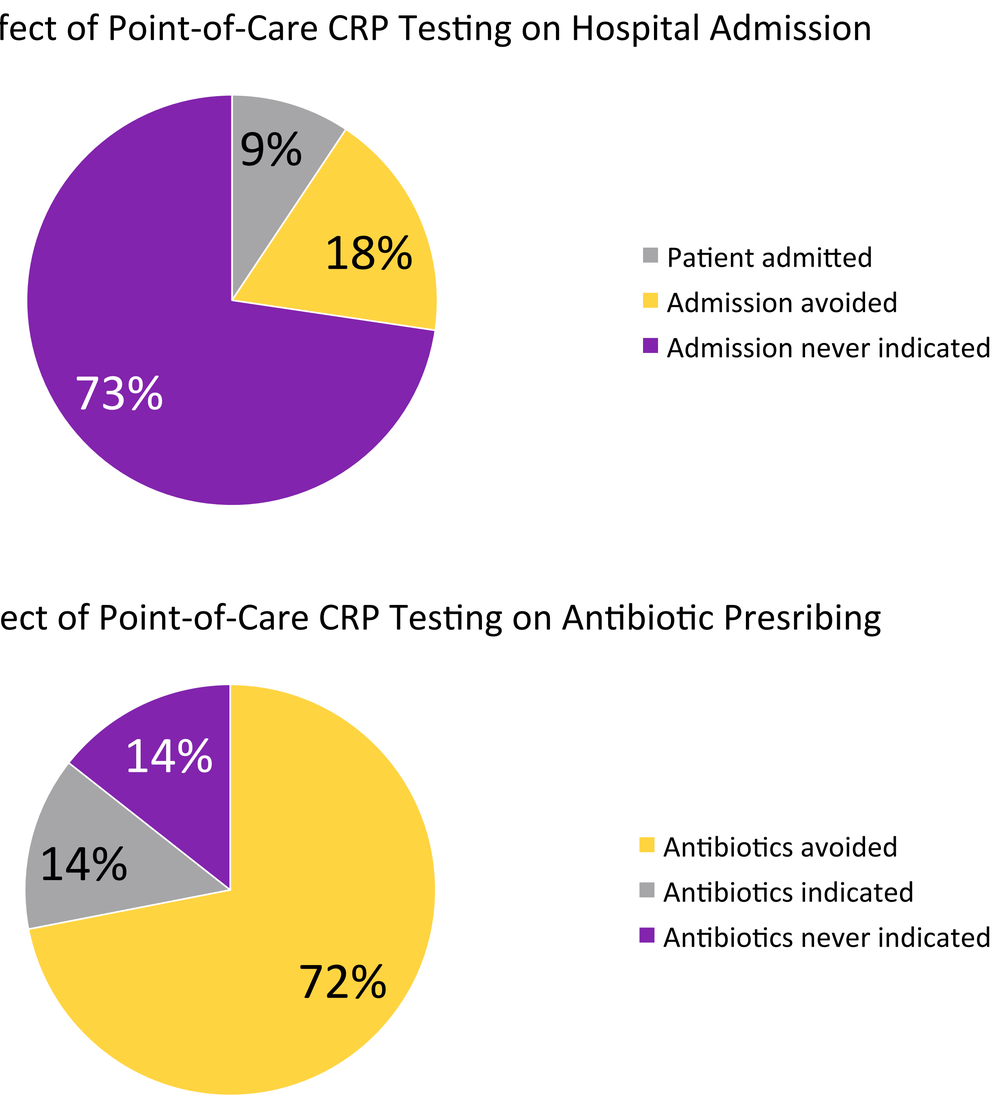

Figure 1. Pie charts demonstrating the effect of point-of-care CRP testing on hospital admission and antibiotic prescribing.

139 patients underwent point-of-care CRP testing in a 7-month period, resulting in 25 admissions being prevented, and 100 antibiotic prescriptions being avoided.

Discussion

Point-of-care CRP testing appears to reduce hospital admissions from primary care. With the average cost of a hospital admission being estimated at £1500, it can be deduced that such testing is cost efficient for the NHS. It is also favourable to the patient to be in the community. Of the 25 patients for whom admission was avoided, 7 individuals required further GP appointments. No patients were admitted at a later date. Although this incurs further costs to primary care, on balance it could be argued that there would be an overall saving to the Clinical Commissioning Group (CCG).

Additionally, point-of-care CRP testing has demonstrated a reduction in antibiotic prescribing. As a result of CRP measurement, 100 patients were not prescribed antimicrobials. Of these patients, 28 returned for a further appointments, however only 4 patients subsequently required antibiotics. A reduction in antibiotic prescribing contributes to antimicrobial stewardship, a concept that is especially important in general practice.

Whilst the results are dependent on clinician coding, the below graph demonstrates a fall in antibiotic prescribing at the practice, which may be influenced by the introduction of point-of-care CRP testing, from Nov 2015.

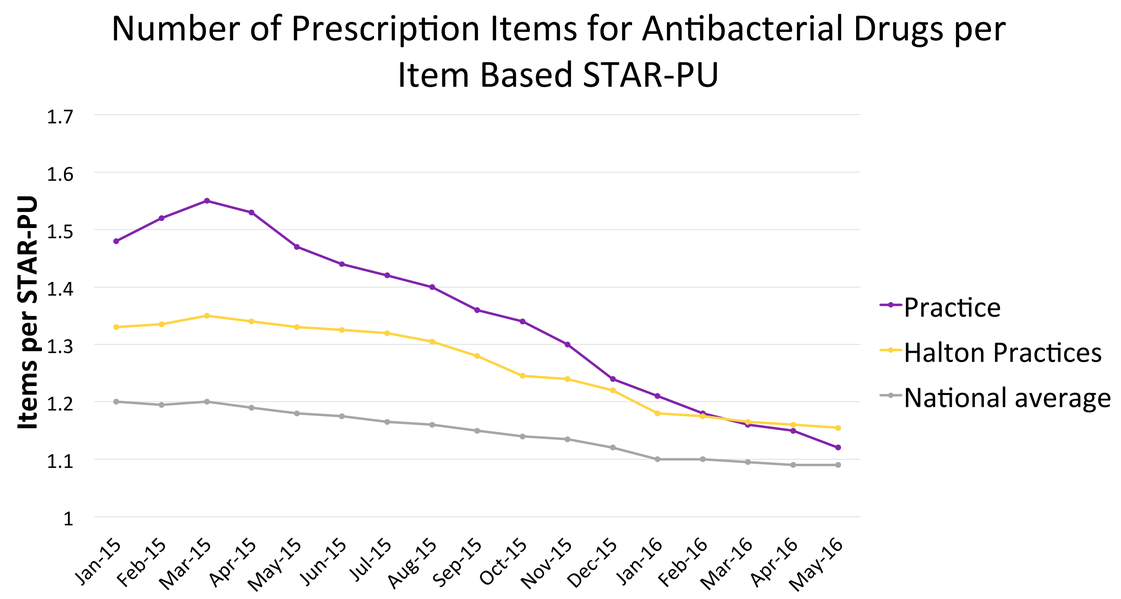

Figure 2. A graph demonstrating the number of prescription items for antibacterial drugs per item based STAR-PU (specific therapeutic group age-sex related prescribing units). Adapted from NHS England data[1].

Of the 139 patients in the data set, 47.5% (n=66) presented with respiratory symptoms, whilst 18.7% (n=26) presented with ENT symptoms. Recent NICE guidance (CG191)[2] surrounding lower respiratory tract infections state that point-of-care CRP testing may be considered to aid decisions regarding antibacterial treatment, further highlighting the potential usefulness of this testing.

Conclusion

This review has suggested point-of-care CRP testing could both reduce antibiotic prescribing and prevent unnecessary hospital admissions from the community. With the cost of a point-of-care CRP testing machine being in the region of £1500, it can be seen as a cost-effective purchase when balanced against the effect on prescribing and admissions.

Acknowledgements

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References

1. Quality Premium: Number of Prescription Items for Antibacterial Drugs per Antibacterial Item Based STAR-PU. Halton CCG Quality Premium Antibiotic Prescribing Dashboard. 2016 [cited 30th August 2016]. Available from: https://www.england.nhs.uk/resources/resources-for-ccgs/ccg-out-tool/ccg-ois/anti-dash/

2. Pneumonia in Adults: Diagnosis and Management (CG191). National Institute for Health and Care Excellence (NICE). 2014 [cited 30th August 2016]. Available from: https://www.nice.org.uk/guidance/cg191/resources/pneumonia-in-adults-diagnosis-and-management-35109868127173