Appendix B: Results from Herts Valleys CCG implementation study

Five intervention practices with a total list size of 63,743 patients recorded 682 eligible LRTI presentations during the study period, of which 176 (26%) involved a CRP test. Three control practices recorded 258 presentations (based on the same eligibility criteria) from 35,928 patients.

The conversion of initial LRTI presentations to CRP tests (intervention arm only) and to other primary care healthcare events (both study arms) were reported descriptively. A binary outcome variable was created to represent antibiotic prescription during the 28 days following the initial LRTI presentation. As delayed prescribing was relatively infrequent at both intervention and control practices acute and delayed prescriptions were combined into a single outcome. Multivariate logistic regression was then used to estimate the odds of antibiotic prescription and follow-up consultation following initial presentation to practices in the intervention and control arms, adjusting for age (modelled as a binary variable with categories '< 44' and '≥ 45') and sex. Model fit was assessed using the likelihood ratio test, which indicated that patient sex was not a statistically significant predictor of either outcome. Adjusted odds ratios from the final models were reported, along with 95% confidence intervals and p-values to assess significance.

Overall, fewer initial presentations to intervention practices resulted in antibiotic prescription (59% of initial presentations, as compared to 79%) and follow-up consultations (30% compared to 38%), although there was little difference to antibiotic prescribing at follow-up (both arms 68%) (**table 2**). Furthermore, initial presentations with antibiotic prescription then resulting in follow-up consultation with an additional prescription were more common amongst control practices (21% compared to 13%).

	Intervention arm (n = 682)		Control arm (n = 258)	
	Outcome events	%	Outcome events	%
CRP test at initial presentation	176	26	-	-
Antibiotic prescription at initial presentation	405	59	204	79
Follow-up consultation after initial presentation	206	30	99	38
Antibiotic prescription at follow-up consultation	140	68 [a]	67	68 [a]
Initial presentation with antibiotic prescription, then follow-up consultation with additional antibiotic prescription	92	13	55	21
Table 2: Primary care healthcare events resulting from initial LRTI presentation *All percentages compared to number of initial presentations, except ([a]) compared to number of follow up consultations*				

We found that the odds of antibiotic prescribing after initial presentation were reduced by 62% amongst intervention practices, and the odds of follow up consultation were reduced by 32% (**table 3**). In each case we found that the outcome was more likely amongst presenting patients in the older age category.

Outcome	Variable	Adjusted OR (95% CI)	p-value
Antibiotic prescription after initial presentation	**Study arm** Control Intervention	*Reference* 0.38 (0.27, 0.53)	< 0.001
	Patient age < 44 ≥ 45	*Reference* 1.35 (1.02, 1.77)	0.035
Follow-up consultation after initial presentation	**Study arm** Control Intervention	*Reference* 0.68 (0.51, 0.92)	0.013
	Patient age < 44 ≥ 45	*Reference* 1.40 (1.06, 1.85)	0.019
Table 3: Multivariate logistic regression models for the association of practice-level intervention with antibiotic prescribing after initial presentation and follow-up consultation after initial presentation			