Appendix 1

1) Comparison of characteristics from higher (higher than the median of 51 patients per practice) and lower recruiting practices

	High recruiting practices (n=131 practices)	Lower recruiting practices
Age 60+ years	8038/21711 (37.0%)	2805/7068 (39.7%)
Female	12924/21708 (59.5%)	4142/7066 (58.6%)
Duration illness <7 days	10485/21711 (48.3%)	3473/7068 (49.1%)
Received pneumovax <10y	4013/21711 (18.5%)	1260/7068 (17.8%)
Ever smoked	11482/21388 (53.7%)	3636/6923 (52.5%)
Any co-morbidity	9766/21711 (45.0%)	3294/7068 (46.6%)
Lung co-morbidity	5684/21711 (26.2%)	1753/7068 (24.8%)
On steroids or bronchodilators	5011/20907 (24.0%)	1500/6563 (22.9%)
Living in top decile deprivation area (most deprived*)	4392/21711 (20.0%)	1347/7068 (19.1%)
Symptoms		
Shortness of breath	14103/21668 (65.1%)	4345/6993 (62.1%)
Fever	8204/21684 (37.8%)	2745/7028 (39.1%)
Chills	6906/21676 (31.9%)	2217/7025 (31.6%)
Chest pain	8065/21686 (37.2%)	2547/7022 (36.3%)
Confusion	1450/21702 (6.7%)	406/7059 (5.8%)
Coryza	11938/21672 (55.1%)	3754/7010 (53.6%)
Headache	10030/21678 (46.3%)	3192/7017 (45.5%)
Muscle aches	7952/21675 (36.7%)	2519/7023 (35.8%)
Diarrhoea	1916/21705 (8.8%)	586/7049 (8.3%)
Sputum: purulent	13743/21709 (63.3%)	4444/7066 (62.9%)
bloody/rusty	749/21709 (3.5%)	360/7066 (3.7%)
Clinical examination		
Severity assessment $\geq$ 5/10	8480/21711 (39.1%)	3378/7068 (47.8%)
Resp rate $\geq$ 24/min	2058/21620 (9.5%)	812/7042 (11.5%)
Temp $\geq$ 37.8°C	1238/21706 (5.7%)	405/7052 (5.7%)
Pulse $\geq$ 100/min	2126/21703 (9.8%)	662/7064 (9.4%)
O_2 sat < 95%	1209/17696 (6.7%)	480/5722 (8.4%)
SBP$\leq$ 90 or DBP $\leq$ 60 mmHg	1651/21711 (7.6%)	537/7068 (7.6%)
Crackles	9355/21706 (43.1%)	2854/7065 (40.4%)
Bronchial breathing	1512/21703 (7.0%)	644/7063 (9.1%)
Wheeze	5295/21704 (24.4%)	1753/7065 (24.8%)

2) Assessment of covariate balance in the stratified propensity scores.

Covariate balance was assessed by examining the standardised mean differences and a difference of 0.10 or more taken to indicate substantial imbalance (Normand ST, Landrum M, Guadagnoli E, et al. Validating recommendations for coronary angiography following acute myocardial infarction in the elderly: a matched analysis using propensity scores. J Clin Epidemiol. 2001 Apr;54(4):387-98.) Our main concern was the impact of residual confounding for immediate antibiotics. The table below shows that for immediate antibiotics, adequate covariate balance was obtained and if there was residual confounding, it is more likely to come from unmeasured confounders. With delayed prescribing, the covariate balance for most but not all covariates improved but there was still a risk of residual confounding (so it is possible we have underestimated the impact of delayed prescription on complications). It was not possibly to improve covariate balance further by increasing the number of strata or using another propensity score method (e.g. inverse probability weighting), although we did try this.

	No antibiotics compared to Immediate antibiotics		**No antibiotics compared to Delayed antibiotics**	
	Standardised mean difference before propensity score stratification	**Standardised mean difference after propensity score stratification**	**Standardised mean difference before propensity score stratification**	**Standardised mean difference after propensity score stratification**
Age 60+ years	0.288	0.066	0.086	0.011
Female	-0.055	-0.020	-0.032	0.039
Received pneumovax <10y	0.168	0.027	0.045	0.045
Ever smoked	0.114	0.007	0.006	0.019
Lung co-morbidity	0.214	0.022	0.065	0.047
On steroids or bronchodilators	0.221	0.020	0.058	0.065
Symptoms				
Shortness of breath	0.357	0.025	0.142	0.061
Fever	0.282	0.006	0.186	-0.076
Chills	0.235	0.041	0.143	0.007
Chest pain	0.070	-0.000	0.041	0.018
Confusion	0.066	-0.010	0.017	-0.025
Coryza	0.002	-0.002	0.097	-0.096
Headache	0.108	-0.001	0.127	-0.077
Muscle aches	0.140	-0.001	0.064	0.003
Diarrhoea	0.063	0.013	0.054	-0.004
Sputum colour	0.450	0.016	0.344	-0.093
Clinical examination				
Severity assessment ≥ 5/10	1.055	-0.007	0.425	0.113
Resp rate ≥ 24/min	0.226	0.029	0.031	0.133
Temp ≥ 37.8°C	0.197	0.013	0.055	0.052
Pulse ≥ 100/min	0.199	0.010	0.049	0.070
O_2 sat < 95%	0.297	0.020	0.061	0.012
SBP≤ 90 or DBP ≤ 60 mmHg	-0.057	-0.039	-0.084	-0.042
Crackles	1.782	0.041	0.652	0.047
Bronchial breathing	0.396	0.022	0.165	0.055
Wheeze	0.661	0.040	0.181	0.132

Summary of missing data

Variables	No missing (n=28 883)	Proportion (%) data missing
Reconsultation <30 days	0	0
Hospital admission or death	24	0.1
Antibiotic strategy	0	0
Age	0	0
Sex	5	0.02
Illness duration	0	0
Received pneumovax	0	0
Smoking status	469	1.6
Any comorbidity	0	0
Lung comorbidity	0	0
Steroid or bronchodilator use	1313	4.6
Deprivation	0	0
Symptoms:		
Shortness of breath	119	0.4
Fever	68	0.2
Chills	79	0.3
Chest pain	72	0.3
Confusion	18	0.1
Coryza	98	0.3
Headache	85	0.3
Muscle aches	82	0.3
Diarrhoea	26	0.1
Sputum colour **[Author: Purulent sputum?]**	4	0.01
Clinical examination:		
Severity assessment	10	0.03
Resp rate	119	0.4
Temp	21	0.7
Pulse	12	0.4
Oxygen saturation	5100	17.7
Blood pressure	34	0.1
Crackles	8	0.03
Bronchial breathing	13	0.1
Wheeze	10	0.01

Sensitivity analysis for missing data on oxygen saturation

Antibiotic prescribing	Reconsultation				Hospital admission			
	Multivariable risk ratio using stratified propensity score—assuming	P value	Multivariable risk ratio using stratified propensity score—assuming	P value	Multivariable risk ratio using stratified propensity score—assuming	P value	Multivariable risk ratio using stratified propensity score—assuming	P value

	all missing values are oxygen saturation <95%		**all missing values are oxygen saturation >95%**		**all missing values are oxygen saturation <95%**		**all missing values are oxygen saturation >95%**	
None	1.00		1.00		1.00		1.00	
Immediate	0.99 (0.92 to 1.07)	0.74	0.98 (0.91 to 1.06)	0.66	1.11 (0.67 to 1.84)	0.69	1.05 (0.64 to 1.75)	0.82
Delayed	0.64 (0.59 to 0.73)	<0.01	0.65 (0.59 to 0.72)	<0.01	0.85 (0.43 to 1.66)	0.63	0.80 (0.41 to 1.57)	0.52