

**File S2 - Associations between hospital episodes and primary care factors:
incidence rate ratios**

Unadjusted and adjusted rate ratios associated with each reference point (Table 1) for each primary care factor are displayed

* Adjusted for practice, patient population age and sex

**Adjusted for patient population age, sex, ethnicity, morbidity score and IMD, GP age, sex and country of qualification, and practice list size, handedness and QOF achievement on the indicators listed

IRR = incidence rate ratio, CI = confidence interval, IMD = index of multiple deprivation, GP = general practitioner, FTE = full-time equivalent, QOF = Quality and Outcomes Framework

		Reference point	Unadjusted IRR (95 % CI)*	Adjusted IRR (95 % CI)**
Patient population factors	IMD	10	ref	ref
		25	1.152 (1.112, 1.194)	1.146 (1.098, 1.197)
		40	1.234 (1.178, 1.292)	1.204 (1.136, 1.277)
	Patient ethnicity (% white)	100	ref	ref
		90	0.982 (0.956, 1.008)	0.969 (0.939, 1.000)
		50	1.126 (1.063, 1.193)	1.079 (0.995, 1.171)
	Patient comorbidity score (registrations/1000 patients)	0	ref	ref
		500	1.042 (0.917, 1.184)	1.213 (0.944, 1.558)
		750	1.063 (0.910, 1.242)	1.257 (0.983, 1.607)
GP factors	GP supply (FTE/1000 patients)	7.5	ref	ref
		6	0.977 (0.964, 0.991)	0.976 (0.961, 0.990)
		4.5	0.955 (0.929, 0.983)	0.952 (0.923, 0.982)
	Handedness of practice	Multi-handed	ref	ref
		Single-handed	1.015 (0.954, 1.081)	1.039 (0.942, 1.146)
	GPs ≥ 50 years (%)	0	ref	ref
		50	0.946 (0.887, 1.008)	0.969 (0.907, 1.036)
		100	0.956 (0.896, 1.019)	0.978 (0.909, 1.053)
	GPs with non-UK qualifications (%)	0	ref	ref
		50	0.981 (0.933, 1.031)	0.923 (0.877, 0.972)
		100	1.030 (0.976, 1.086)	0.974 (0.913, 1.039)
	Female GPs (%)	0	ref	ref
		50	1.023 (0.961, 1.090)	1.058 (0.970, 1.155)
		100	1.055 (0.968, 1.149)	1.063 (0.970, 1.165)
	QOF indicator achievement	Total QOF points (%)	100	ref
95			0.992 (0.953, 1.032)	0.947 (0.901, 0.996)
90			1.007 (0.946, 1.072)	0.932 (0.856, 1.014)
PE07 (%)		100	ref	ref
		80	1.051 (0.983, 1.125)	1.010 (0.936, 1.090)
		60	1.078 (1.000, 1.162)	1.004 (0.921, 1.096)
PE08 (%)		100	ref	ref
		80	1.059 (0.993, 1.130)	1.030 (0.958, 1.107)

	60	1.095 (1.011, 1.186)	1.044 (0.953, 1.144)
CHD06 (%)	100	ref	ref
	90	0.992 (0.904, 1.088)	0.929 (0.816, 1.059)
	80	1.009 (0.918, 1.108)	0.905 (0.777, 1.053)
CHD08 (%)	100	ref	ref
	80	0.958 (0.838, 1.096)	0.866 (0.739, 1.015)
	60	1.167 (1.033, 1.319)	1.089 (0.913, 1.298)
STROKE06 (%)	100	ref	ref
	90	1.061 (0.990, 1.136)	1.084 (0.994, 1.181)
	80	1.082 (0.991, 1.181)	1.097 (0.974, 1.235)
STROKE08 (%)	100	ref	ref
	80	1.031 (0.932, 1.140)	1.027 (0.917, 1.150)
	60	1.098 (0.973, 1.239)	1.064 (0.917, 1.233)
DM17 (%)	100	ref	ref
	80	1.158 (0.993, 1.350)	1.161 (0.976, 1.382)
	60	1.200 (1.059, 1.359)	1.085 (0.916, 1.285)
DM26 (%)	100	ref	ref
	70	1.614 (1.295, 2.012)	1.625 (1.292, 2.042)
	40	1.487 (1.277, 1.731)	1.342 (1.128, 1.597)
DM30 (%)	100	ref	ref
	90	0.967 (0.883, 1.059)	0.867 (0.767, 0.979)
	80	0.968 (0.881, 1.062)	0.844 (0.731, 0.976)
BP05 (%)	100	ref	ref
	80	1.080 (0.914, 1.276)	1.166 (0.932, 1.460)
	60	1.087 (0.957, 1.235)	1.122 (0.901, 1.399)
MED12 (%)	100	ref	ref
	0	1.034 (0.927, 1.154)	1.002 (0.886, 1.132)
RECORD09 (%)	100	ref	ref
	0	1.079 (1.003, 1.161)	1.079 (1.001, 1.163)