

Appendix A. PPV and sensitivity IPAEOP and IPAEOPGP models. Individual site runs.

Risk Score Threshold	IP+AE+OP Data									
	Newham		Cornwall		Kent		Croydon		Redbridge	
	PPV	Sensitivity	PPV	Sensitivity	PPV	Sensitivity	PPV	Sensitivity	PPV	Sensitivity
1	0.049	1.000	0.061	1.000	0.052	1.000	0.046	1.000	0.047	1.000
10	0.236	0.361	0.216	0.391	0.213	0.339	0.241	0.378	0.238	0.425
20	0.368	0.201	0.328	0.188	0.326	0.158	0.377	0.210	0.357	0.236
30	0.450	0.136	0.406	0.109	0.401	0.094	0.444	0.142	0.420	0.149
40	0.506	0.098	0.477	0.072	0.457	0.062	0.486	0.100	0.475	0.098
50	0.552	0.071	0.520	0.047	0.513	0.043	0.528	0.073	0.512	0.067
60	0.585	0.052	0.560	0.030	0.569	0.031	0.580	0.055	0.532	0.044
70	0.632	0.037	0.622	0.021	0.618	0.022	0.610	0.040	0.555	0.028
80	0.678	0.024	0.655	0.013	0.673	0.014	0.659	0.028	0.571	0.016
90	0.717	0.013	0.692	0.007	0.724	0.008	0.710	0.016	0.617	0.008
Top 1%	0.501	0.102	0.470	0.077	0.417	0.080	0.482	0.106	0.474	0.101
Top 5%	0.287	0.291	0.292	0.240	0.259	0.249	0.290	0.318	0.296	0.316

Risk Score Threshold	IP+AE+OP+GP Data									
	Newham		Cornwall		Kent		Croydon		Redbridge	
	PPV	Sensitivity	PPV	Sensitivity	PPV	Sensitivity	PPV	Sensitivity	PPV	Sensitivity
1	0.049	1.000	0.061	1.000	0.052	1.000	0.046	1.000	0.047	1.000
10	0.228	0.410	0.213	0.439	0.210	0.392	0.237	0.452	0.237	0.457
20	0.360	0.235	0.323	0.232	0.314	0.194	0.358	0.267	0.348	0.272
30	0.439	0.152	0.410	0.136	0.397	0.113	0.442	0.174	0.423	0.172
40	0.499	0.103	0.481	0.084	0.459	0.072	0.494	0.114	0.482	0.113
50	0.566	0.074	0.545	0.053	0.521	0.048	0.550	0.079	0.522	0.073
60	0.606	0.052	0.602	0.033	0.580	0.032	0.589	0.052	0.563	0.047
70	0.657	0.036	0.659	0.021	0.644	0.021	0.643	0.035	0.616	0.030
80	0.723	0.021	0.714	0.013	0.694	0.013	0.694	0.021	0.651	0.018
90	0.766	0.012	0.745	0.006	0.752	0.007	0.735	0.011	0.655	0.007
Top 1%	0.504	0.102	0.490	0.081	0.438	0.084	0.502	0.110	0.487	0.104
Top 5%	0.296	0.300	0.309	0.254	0.272	0.262	0.307	0.337	0.312	0.333

Appendix B Regression coefficients. IPAEOP and IPAEOPGP models. Individual site runs.

	IP+AE+OP Data					IP+AE+OP+GP Data				
	NH	CW	KT	CR	RB	NH	CW	KT	CR	RB
Age	0.015	0.003	0.009	0.010	0.019	0.001	-0.004	0.002	0.001	0.009
Age 65-74	0.280	0.409	0.295	0.380	0.261	0.236	0.276	0.203	0.244	0.245
Age 75-84	0.738	0.905	0.731	0.847	0.734	0.721	0.672	0.605	0.708	0.749
Age 85+	1.076	1.483	1.226	1.178	1.109	1.150	1.206	1.086	1.187	1.213
Female	0.239	0.002	0.044	0.178	0.058	0.114	-0.095	-0.075	-0.014	-0.030
Practice IMD	0.013	0.003	0.016	0.018	0.012	0.008	0.004	0.017	0.010	0.015
Months registered 1 yr prior	0.014	-0.011	-0.005	-0.018	-0.013	0.011	-0.011	-0.003	-0.010	-0.006
Months registered 2 yrs prior	-0.022	-0.019	-0.016	-0.007	-0.023	-0.021	-0.024	-0.019	-0.011	-0.021
EM Adms prior 0-90 days	0.382	0.471	0.321	0.310	0.282	0.367	0.420	0.283	0.269	0.259
EL Adms prior 0-90 days	0.045	0.216	0.155	0.153	0.148	0.033	0.159	0.074	0.097	0.069
Any attender prior 0-90 days	0.115	0.027	0.001	0.041	0.073	0.135	0.026	0.010	0.042	0.064
Any day case prior 0-90 days	0.094	0.234	0.110	0.111	0.251	0.037	0.173	0.039	-0.019	0.130
EM Adms prior 91-180 days	0.215	0.310	0.351	0.282	0.185	0.217	0.262	0.297	0.243	0.160
EL Adms prior 91-180 days	0.321	0.150	0.062	0.204	0.081	0.283	0.128	0.027	0.118	0.024
EM Adms prior 181-365 days	0.113	0.345	0.350	0.248	0.146	0.124	0.289	0.292	0.227	0.129
EL Adms prior 181-365 days	0.097	0.120	0.104	0.118	0.170	0.072	0.079	0.060	0.035	0.108
Em Adms 2 yrs prior	0.102	0.269	0.307	0.181	0.143	0.116	0.216	0.250	0.178	0.149
Any day case 2 yrs prior	0.096	0.157	0.186	0.151	0.179	0.058	0.092	0.112	0.005	0.103
DX MI	-0.108	0.097	-0.105	-0.004	0.376	-0.197	-0.003	-0.163	-0.111	0.228
DX CHF	-0.348	-0.070	-0.246	-0.069	-0.337	-0.370	-0.178	-0.269	-0.110	-0.216
DX CVD	0.296	0.227	0.033	0.037	-0.040	0.269	0.166	-0.001	-0.099	-0.061
CD CTD	0.030	-0.024	0.101	-0.380	-0.029	0.071	-0.192	-0.010	-0.427	-0.039
DX PVD	-0.245	0.124	0.099	-0.100	0.021	-0.253	0.048	0.026	-0.096	0.003
DX Asthma	0.082	0.143	0.184	0.099	0.192	-0.114	-0.107	-0.023	-0.081	0.028
DX COPD	0.204	0.251	0.277	0.193	0.123	-0.169	-0.139	-0.036	-0.330	-0.269
DX Diabetes	0.240	0.303	0.285	0.253	0.276	-0.046	-0.052	-0.016	-0.124	0.011
DX Diabetes with complications	0.059	-0.221	0.062	-0.014	0.334	0.062	-0.176	0.095	0.004	0.262
DX Renal Disease	0.408	0.022	0.085	0.128	0.199	0.356	0.005	0.073	0.063	0.120
DX Cancer	-0.165	-0.019	-0.062	-0.308	0.041	0.041	0.098	-0.010	-0.207	0.034
DX Mental	0.498	0.316	0.363	0.484	0.077	0.340	0.131	0.111	0.266	-0.061
DX Alcohol	0.569	0.684	0.578	0.673	0.974	0.281	0.530	0.357	0.409	0.754
DX Dementia	-0.548	-0.589	-0.551	-0.402	-0.596	-0.530	-0.486	-0.440	-0.669	-0.641
DX Cognitive Impairment	-0.117	0.016	0.025	0.110	0.187	-0.075	0.046	0.031	0.088	0.152
DX ACS Condition	0.364	0.270	0.239	0.267	0.306	0.269	0.161	0.134	0.114	0.224
Charlson Index	0.055	0.063	0.060	0.101	0.025	0.048	0.062	0.037	0.086	0.029
AE visits prior 0-90 days	0.236	0.267	0.355	0.309	0.359	0.179	0.230	0.265	0.199	0.260
AE unplanned follow-up visits prior 0-90 days	-0.094	-0.583	-0.533	-0.874	-0.383	-0.107	-0.566	-0.452	-0.703	-0.315
AE X-ray prior 0-90 days	0.348	0.437	0.058	0.104	0.367	0.303	0.382	0.027	0.040	0.317
AE visits prior 91-180 days	0.265	0.262	0.220	0.225	0.277	0.197	0.225	0.165	0.142	0.210
AE unplanned follow-up visits prior 91-180 days	-0.023	-0.560	-0.229	-0.296	-0.298	-0.026	-0.543	-0.177	-0.225	-0.286
AE X-ray prior 91-180 days	0.227	0.117	0.120	0.346	-0.064	0.210	0.015	0.101	0.237	0.010
AE visits prior 181-365 days	0.264	0.205	0.135	0.171	0.181	0.216	0.174	0.090	0.115	0.138
AE unplanned follow-up visits prior 181-365 days	-0.251	-0.490	-0.184	-0.261	-0.203	-0.214	-0.449	-0.131	-0.175	-0.221
AE X-ray prior 181-365 days	0.262	-0.040	0.281	0.324	0.110	0.225	0.085	0.251	0.244	0.072
AE visits 2 yrs prior	0.211	0.159	0.154	0.140	0.160	0.170	0.138	0.114	0.077	0.121
AE unplanned follow-up visits 2 yrs prior	-0.307	-0.352	-0.239	-0.433	-0.339	-0.228	-0.317	-0.178	-0.262	-0.288
AE X-ray 2yrs prior	0.083	0.231	0.100	0.128	0.179	0.063	0.390	0.082	0.069	0.152
Outpatient specialty visits prior 0-90 days	0.046	0.055	0.091	0.061	0.059	0.025	0.033	0.047	0.030	0.027
Outpatient specialty visits missed prior 0-90 days	0.155	0.182	0.250		0.146	0.108	0.118	0.171		0.097
Outpatient specialty visits prior 91-180 days	0.030	0.013	0.023	0.034	0.029	0.007	0.003	-0.004	0.015	0.011
Outpatient specialty visits missed prior 91-180 days	0.113	0.239	0.168		0.193	0.087	0.184	0.113		0.159
Outpatient specialty visits prior 181-365 days	0.016	0.010	-0.005	0.019	0.031	-0.003	0.001	-0.024	0.003	0.018
Outpatient specialty visits missed prior 181-365 days	0.128	0.164	0.075		0.140	0.086	0.095	0.036		0.122
Outpatient specialty visits 2 yrs prior	0.019	0.030	0.014	0.028	0.019	0.008	0.014	-0.009	0.011	0.021
Outpatient specialty visits missed 2 yrs prior	0.142	0.162	0.140	0.190	0.082	0.097	0.090	0.085	0.129	0.057
GP DX COPD						0.218	0.174	0.112	0.287	0.295

GP - 1 long term condition	0.131	0.025	0.017	0.106	0.192
GP - 2 or more long term conditions	0.166	0.109	0.038	0.070	0.182
GP - Glomerular filtration rate group 3 last 0-365 days	-0.075	0.092	-0.017		0.050
GP - 10+ unique drugs prescribed	0.342	0.570	0.166	2.741	1.949
GP - 5-9 unique drugs prescribed	0.424	0.444	0.164	2.804	1.953
GP - 0-4 unique drugs prescribed	0.328	0.254	0.114	2.559	1.809
GP - Psychoactive substance misuse disorder	0.388	0.323	0.583	0.431	0.810
GP - 7+ distinct disorders	-0.049	0.057	0.017	-0.163	-0.062
GP - GP visits prior 0-3 months	-0.001	0.008	0.022	0.021	0.042
GP - GP visits prior 4-6 months	0.015	0.004	0.012	0.009	0.019
GP - GP visits prior 7-12 months	0.005	0.003	0.007	0.000	0.008
GP - GP visits 2yrs prior	0.000	0.002	0.004	0.006	0.002
GP - Increasing rate of GP visits during last 12 months	0.184	0.087	0.126	0.207	0.094
GP - Number of high risk BNFs	0.063	0.006	-0.036	-0.026	-0.075
GP - Any high risk	0.219	0.202	0.241	0.324	0.249
GP - Count of BNF chapters	0.066	0.053	0.059	0.066	-0.024
GP - DX Dementia	0.421	0.266	0.296	0.471	0.437
GP - Exception reported from quality indicators	0.157	0.108	0.111	0.118	0.132
GP - Health visitor or district nurse visit	0.278	0.244	0.199	0.168	0.184
GP - Record of IHD/angina	0.069	-0.048	0.110	-0.062	0.081
GP - Nebuliser used	0.113	0.315	0.207	0.191	0.448
GP - Salbutamol prescribed	0.021	0.017	0.074	0.000	-0.011
GP - Warfarin prescribed	-0.041	0.031	-0.026	-0.100	-0.244
GP - High blood pressure	-0.040	-0.001	-0.013	-0.048	-0.087
GP - Smoker	0.298	0.231	0.248	0.240	0.220
GP - BMI 30+	0.050	0.002	0.085	0.046	0.199
GP - HbA1c > 10	0.236	0.270	0.210	0.362	0.354
GD - QOF ARTF	0.176	0.064	0.095	-0.047	0.143
GP - QOF CKD	0.206	-0.003	-0.037	0.091	0.210
GP - QOF Depression	0.069	0.248	0.183	0.133	0.186
GP - Number of QOF DX categories 3+	0.003	-0.023	-0.072	-0.135	-0.009
GP - Number of phone contacts last 0-3 months	-0.004	0.046	0.004	-0.005	-0.004
Constant	-4.665	-3.262	-3.987	-4.363	-4.368
	-4.381	-3.275	-4.069	-6.497	-5.939

Appendix C Regression significance levels. IPAEOP and IPAEOPGP models. Individual site runs.

	IP+AE+OP Data					IP+AE+OP+GP Data				
	NH	CW	KT	CR	RB	NH	CW	KT	CR	RB
Age	0.000	0.000	0.000	0.000	0.000	0.344	0.000	0.001	0.158	0.000
Age 65-74	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Age 75-84	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Age 85+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Female	0.007	0.897	0.000	0.001	0.125	0.000	0.000	0.000	0.466	0.165
Practice IMD	0.008	0.036	0.000	0.000	0.000	0.015	0.010	0.000	0.000	0.000
Months registered 1 yr prior	0.002	0.006	0.085	0.247	0.047	0.009	0.011	0.387	0.026	0.255
Months registered 2 yrs prior	0.001	0.014	0.006	0.232	0.276	0.009	0.003	0.001	0.211	0.025
EM Adms prior 0-90 days	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EL Adms prior 0-90 days	0.664	0.000	0.000	0.029	0.081	0.714	0.000	0.070	0.102	0.373
Any attender prior 0-90 days	0.002	0.000	0.955	0.006	0.004	0.001	0.000	0.489	0.005	0.008
Any day case prior 0-90 days	0.769	0.000	0.001	0.682	0.001	0.561	0.000	0.233	0.699	0.015
EM Adms prior 91-180 days	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
EL Adms prior 91-180 days	0.000	0.000	0.068	0.022	0.528	0.000	0.001	0.437	0.016	0.680
EM Adms prior 181-365 days	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
EL Adms prior 181-365 days	0.548	0.000	0.000	0.757	0.019	0.167	0.009	0.030	0.372	0.014
Em Adms 2 yrs prior	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Any day case 2 yrs prior	0.877	0.000	0.000	0.536	0.035	0.177	0.000	0.000	0.864	0.005
DX MI	0.366	0.134	0.049	0.611	0.000	0.076	0.966	0.002	0.216	0.017
DX CHF	0.024	0.253	0.000	0.448	0.008	0.001	0.005	0.000	0.194	0.026
DX CVD	0.015	0.000	0.446	0.610	0.571	0.013	0.002	0.977	0.179	0.504
CD CTD	0.263	0.756	0.150	0.010	0.759	0.645	0.013	0.891	0.000	0.766
DX PVD	0.230	0.061	0.097	0.567	0.665	0.079	0.462	0.661	0.270	0.982
DX Asthma	0.351	0.002	0.000	0.241	0.015	0.135	0.024	0.580	0.184	0.698
DX COPD	0.005	0.000	0.000	0.009	0.098	0.098	0.021	0.483	0.002	0.041
DX Diabetes	0.000	0.000	0.000	0.000	0.000	0.444	0.227	0.649	0.016	0.845
DX Diabetes with complications	0.478	0.025	0.540	0.363	0.013	0.674	0.073	0.347	0.973	0.083
DX Renal Disease	0.000	0.731	0.142	0.068	0.025	0.001	0.942	0.208	0.405	0.210
DX Cancer	0.753	0.751	0.271	0.001	0.421	0.727	0.104	0.862	0.009	0.721
DX Mental	0.000	0.000	0.000	0.000	0.370	0.000	0.005	0.008	0.000	0.447
DX Alcohol	0.000	0.000	0.000	0.000	0.000	0.029	0.000	0.000	0.000	0.000
DX Dementia	0.005	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000
DX Cognitive Impairment	0.430	0.804	0.620	0.191	0.026	0.456	0.474	0.534	0.199	0.080
DX ACS Condition	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000
Charlson Index	0.012	0.000	0.000	0.000	0.212	0.042	0.000	0.006	0.000	0.160
AE visits prior 0-90 days	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AE unplanned follow-up visits prior 0-90 days	0.895	0.001	0.000	0.000	0.133	0.654	0.001	0.000	0.000	0.121
AE X-ray prior 0-90 days	0.002	0.000	0.301	0.374	0.052	0.004	0.002	0.636	0.662	0.035
AE visits prior 91-180 days	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AE unplanned follow-up visits prior 91-180 days	0.836	0.000	0.000	0.149	0.130	0.899	0.000	0.005	0.214	0.055
AE X-ray prior 91-180 days	0.070	0.582	0.045	0.002	0.672	0.062	0.946	0.090	0.009	0.985
AE visits prior 181-365 days	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AE unplanned follow-up visits prior 181-365 days	0.182	0.000	0.001	0.122	0.124	0.098	0.001	0.013	0.127	0.041
AE X-ray prior 181-365 days	0.000	0.936	0.000	0.000	0.461	0.001	0.866	0.000	0.000	0.485
AE visits 2 yrs prior	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AE unplanned follow-up visits 2 yrs prior	0.021	0.008	0.000	0.003	0.009	0.020	0.016	0.000	0.008	0.005
AE X-ray 2yrs prior	0.183	0.555	0.019	0.022	0.005	0.210	0.320	0.048	0.161	0.006
Outpatient specialty visits prior 0-90 days	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Outpatient specialty visits missed prior 0-90 days	0.000	0.000	0.000		0.002	0.000	0.000	0.000		0.008
Outpatient specialty visits prior 91-180 days	0.196	0.043	0.003	0.002	0.016	0.516	0.630	0.648	0.054	0.184
Outpatient specialty visits missed prior 91-180 days	0.027	0.000	0.000		0.000	0.039	0.000	0.002		0.000
Outpatient specialty visits prior 181-365 days	0.763	0.009	0.400	0.094	0.000	0.595	0.844	0.000	0.491	0.002
Outpatient specialty visits missed prior 181-365 days	0.000	0.000	0.009		0.000	0.001	0.002	0.206		0.000
Outpatient specialty visits 2 yrs prior	0.000	0.000	0.000	0.000	0.000	0.068	0.000	0.046	0.001	0.000
Outpatient specialty visits missed 2 yrs prior	0.000	0.000	0.000	0.000	0.001	0.000	0.006	0.000	0.000	0.000
GP DX COPD						0.002	0.000	0.001	0.000	0.003

GP - 1 long term condition	0.000	0.229	0.310	0.000	0.000
GP - 2 or more long term conditions	0.001	0.000	0.100	0.098	0.000
GP - Glomerular filtration rate group 3 last 0-365 days	0.097	0.002	0.463		0.162
GP - 10+ unique drugs prescribed	0.000	0.000	0.000	0.000	0.000
GP - 5-9 unique drugs prescribed	0.000	0.000	0.000	0.000	0.000
GP - 0-4 unique drugs prescribed	0.000	0.000	0.000	0.000	0.000
GP - Psychoactive substance misuse disorder	0.000	0.000	0.000	0.000	0.000
GP - 7+ distinct disorders	0.311	0.290	0.523	0.002	0.263
GP visits prior 0-3 months	0.873	0.002	0.000	0.000	0.000
GP visits prior 4-6 months	0.000	0.182	0.000	0.008	0.000
GP visits prior 7-12 months	0.075	0.136	0.000	0.987	0.006
GP visits 2yrs prior	0.934	0.013	0.000	0.000	0.263
GP - Increasing rate of GP visits during last 12 months	0.000	0.001	0.000	0.000	0.010
GP - Number of high risk BNFs	0.009	0.691	0.004	0.216	0.002
GP - Any high risk	0.000	0.000	0.000	0.000	0.000
GP - Count of BNF chapters	0.000	0.000	0.000	0.000	0.000
GP - DX Dementia	0.000	0.000	0.000	0.000	0.000
GP - Exception reported from quality indicators	0.020	0.003	0.001	0.020	0.062
GP - Health visitor or district nurse visit	0.000	0.000	0.000	0.000	0.000
GP - Record of IHD/angina	0.355	0.361	0.006	0.202	0.288
GP - Nebuliser used	0.359	0.000	0.001	0.019	0.001
GP - Salbutamol prescribed	0.550	0.523	0.001	0.989	0.795
GP - Warfarin prescribed	0.643	0.423	0.440	0.106	0.001
GP - High blood pressure	0.269	0.984	0.549	0.725	0.325
GP - Smoker	0.000	0.000	0.000	0.000	0.000
GP - BMI 30+	0.074	0.956	0.000	0.074	0.000
GP - HbA1c > 10	0.000	0.000	0.000	0.000	0.000
GD - QOF ARTF	0.130	0.240	0.024	0.586	0.136
GP - QOF CKD	0.003	0.924	0.203	0.063	0.000
GP - QOF Depression	0.240	0.000	0.000	0.024	0.016
GP - Number of QOF DX categories 3+	0.974	0.717	0.123	0.342	0.948
GP - Number of phone contacts last 0-3 months	0.927	0.000	0.600	0.788	0.899
Constant	0.000	0.000	0.000	0.000	0.000

Appendix D Further information of model variables

Variable	Variable description	Time period/Date
GP register variables		
Age	Age	End calendar year (5 months after)
Age 65-74	Age 65-74	End calendar year (5 months after)
Age 75-84	Age 75-84	End calendar year (5 months after)
Age 85+	Age 85+	End calendar year (5 months after)
Female	Sex = female	N/A
Practice IMD	Index of multiple deprivation - GP practice area	N/A
Months registered 1 yr prior	Months registered with GP prior 1-12 months	Prior 1 - 12 months (inclusive)
Months registered 2 yrs prior	Months registered with GP prior 13-24 months	Prior 13 - 24 months (inclusive)
SUS inpatient variables		
EM Adms prior 0-90 days	Number of emergency admissions - prior 1-90 days	Prior 1 to 90 days (inclusive)
EL Adms prior 0-90 days	Number of elective admissions - prior 1-90 days	Prior 1 to 90 days (inclusive)
Any attender prior 0-90 days	Any regular attendance - prior 1-90 days	Prior 1 to 90 days (inclusive)
EM Adms prior 91-180 days	Number of emergency admissions - prior 91-180 days	Prior 91 to 180 days (inclusive)
EL Adms prior 91-180 days	Number of emergency admissions - prior 181-365 days	Prior 181 to 365 days (inclusive)
Any day case prior 0-90 days	Any day case prior 1-90 days	Prior 1 to 90 days (inclusive)
Any day case prior 91-180 days	Any day case prior 91-180 days	Prior 91 to 180 days (inclusive)
Any day case prior 181-365 days	Any day case prior 181-365 days	Prior 181 to 365 days (inclusive)
Any day case 2 yrs prior	Any day case prior 366-730 days	Prior 366 to 730 days (inclusive)
Em Adms 2 yrs prior	Number of emergency admissions - prior 366-730 days	Prior 366 to 730 days (inclusive)
DX Diabetes	Any prim or sec diagnosis - Diabetes, prior 2 years	Prior 1 to 730 days (inclusive)
DX MI	Any prim or sec diagnosis - Myocardial infarction, prior 2 years	Prior 1 to 730 days (inclusive)
DX CHF	Any prim or sec diagnosis - Congestive heart failure, prior 2 years	Prior 1 to 730 days (inclusive)
DX PVD	Any prim or sec diagnosis - Peripheral vascular disease, prior 2 years	Prior 1 to 730 days (inclusive)
DX CVD	Any prim or sec diagnosis - Cerebral vascular disease, prior 2 years	Prior 1 to 730 days (inclusive)
DX Dementia	Any prim or sec diagnosis - Dementia, prior 2 years	Prior 1 to 730 days (inclusive)
CD CTD	Any prim or sec diagnosis - Connective tissue disease, prior 2 years	Prior 1 to 730 days (inclusive)
DX Cancer	Any prim or sec diagnosis - Malignant cancer, prior 2 years	Prior 1 to 730 days (inclusive)
DX Diabetes with complications	Any prim or sec diagnosis - Diabetes with complications, prior 2 years	Prior 1 to 730 days (inclusive)
DX Renal Disease	Any prim or sec diagnosis - Renal disease, prior 2 years	Prior 1 to 730 days (inclusive)
Charlson Index	Charlson Comorbidity Index, prior 2 years	Prior 1 to 730 days (inclusive)
DX Alcohol	Any prim or sec diagnosis - Alcohol abuse, prior 2 years	Prior 1 to 730 days (inclusive)
DX COPD	Any prim or sec diagnosis - Chronic obstructive pulmonary disease, prior 2 years	Prior 1 to 730 days (inclusive)
DX Mental	Any prim or sec diagnosis - Mental illness, prior 2 years	Prior 1 to 730 days (inclusive)
DX Asthma	Any prim or sec diagnosis - Asthma, prior 2 years	Prior 1 to 730 days (inclusive)
DX Cognitive Impairment	Any prim or sec diagnosis - Miscellaneous cognitive dysfunctions, prior 2 years	Prior 1 to 730 days (inclusive)
DX ACS Condition	Any prim or sec diagnosis - ACS: Any ambulatory care sensitive condition	Prior 1 to 730 days (inclusive)
SUS AE variables		
AE visits prior 0-90 days	Number of A&E visits (any) prior 1-90 days	Prior 1 to 90 days (inclusive)
AE unplanned follow-up visits prior 0-90 days	Number of A&E visits - unplanned follow-up prior 1-90 days	Prior 1 to 90 days (inclusive)
AE X-ray prior 0-90 days	Number of A&E visits with X-ray prior 1-90 days	Prior 1 to 90 days (inclusive)
AE visits prior 91-180 days	Number of A&E visits (any) prior 91-180 days	Prior 91 to 180 days (inclusive)
AE unplanned follow-up visits prior 91-180 days	Number of A&E visits - unplanned follow-up prior 91-180 days	Prior 91 to 180 days (inclusive)
AE X-ray prior 91-180 days	Number of A&E visits with X-ray prior 91-180 days	Prior 91 to 180 days (inclusive)
AE visits prior 181-365 days	Number of A&E visits (any) prior 181-365 days	Prior 91 to 180 days (inclusive)
AE unplanned follow-up visits prior 181-365 days	Number of A&E visits - unplanned follow-up prior 181-365 days	Prior 181 to 365 days (inclusive)
AE X-ray prior 181-365 days	Number of A&E visits with X-ray prior 181-365 days	Prior 181 to 365 days (inclusive)
AE visits 2 yrs prior	Number of A&E visits (any) prior 366-730 days	Prior 366 to 730 days (inclusive)
AE unplanned follow-up visits 2 yrs prior	Number of A&E visits - unplanned follow-up prior 366-730 days	Prior 366 to 730 days (inclusive)
AE X-ray 2yrs prior	Number of A&E visits with X-ray prior 366-730 days	Prior 366 to 730 days (inclusive)

SUS outpatient variables		
Outpatient specialty visits prior 0-90 days	Number of outpatient visits (all) prior 1-90 days	Prior 1 to 90 days (inclusive)
Outpatient specialty visits missed prior 0-90 days	Number of outpatient visits missed prior 1-90 days	Prior 1 to 90 days (inclusive)
Outpatient specialty visits prior 91-180 days	Number of outpatient visits (all) prior 91-180 days	Prior 91 to 180 days (inclusive)
Outpatient specialty visits missed prior 91-180 days	Number of outpatient visits missed prior 91-180 days	Prior 91 to 180 days (inclusive)
Outpatient specialty visits prior 181-365 days	Number of outpatient visits (all) prior 181-365 days	Prior 181 to 365 days (inclusive)
Outpatient specialty visits missed prior 181-365 days	Number of outpatient visits missed prior 181-365 days	Prior 181 to 365 days (inclusive)
Outpatient specialty visits 2 yrs prior	Number of outpatient visits (all) prior 365-730 days	Prior 366 to 730 days (inclusive)
Outpatient specialty visits missed 2 yrs prior	Number of outpatient visits missed prior 365-730 days	Prior 366 to 730 days (inclusive)
GP consultations data		
GP DX COPD	Diagnosis of COPD, prior 2 years	Prior 1 to 730 days (inclusive)
GP - 1 long term condition	Chronic conditions - 1 in prior 2 years	Prior 1 to 730 days (inclusive)
GP - 2 or more long term conditions	Chronic conditions - 2 or more in prior 2 years	Prior 1 to 730 days (inclusive)
GP - Glomerular filtration rate group 3 last 0-365 days	Glomerular Filtration Rate Group 3 in last year	Prior 1 to 365 days (inclusive)
GP - 10+ unique drugs prescribed	1-4 unique drugs - last 1 to 90 days	Prior 1 to 90 days (inclusive)
GP - 5-9 unique drugs prescribed	5-9 unique drugs - last 1 to 90 days	Prior 1 to 90 days (inclusive)
GP - 0-4 unique drugs prescribed	10+ unique drugs - last 1 to 90 days	Prior 1 to 90 days (inclusive)
GP - Psychoactive substance misuse disorder	Psychoactive substance misuse disorder, prior 2 years	Prior 1 to 730 days (inclusive)
GP - 7+ distinct disorders	7+ distinct disease disorders recorded in prior 90 days	Prior 1 to 90 days (inclusive)
GP - GP visits prior 0-3 months	Count of different BNF chapters of prescribed medicines, prior 2 years	Prior 1 to 730 days (inclusive)
GP - GP visits prior 4-6 months	Number of GP visits prior 1-3 months	Prior 1 to 3 months (inclusive)
GP - GP visits prior 7-12 months	Number of GP visits prior 13-24 months	Prior 13 to 24 months (inclusive)
GP - GP visits 2yrs prior	Number of GP visits prior 4-6 months	Prior 4 to 6 months (inclusive)
GP - Increasing rate of GP visits during last 12 months	Number of GP visits prior 7-12 months	Prior 7 to 12 months (inclusive)
GP - Number of high risk BNFs	Substantial increase in GP visits last year	
GP - Any high risk	Number of BNF codes associated with emergency admissions, prior 2 years	Prior 1 to 730 days (inclusive)
GP - Count of BNF chapters	Any BNF codes associated with emergency admissions, prior 2 years	Prior 1 to 730 days (inclusive)
GP - DX Dementia	Diagnosis of Dementia, prior 2 years	Prior 1 to 730 days (inclusive)
GP - Exception reported from quality indicators	QOF register exceptions, prior 2 years	Prior 1 to 730 days (inclusive)
GP - Health visitor or district nurse visit	Any home/district visit, prior 2 years	Prior 1 to 730 days (inclusive)
GP - Record of IHD/angina	Diagnosis of IHD/angina, prior 2 years	Prior 1 to 730 days (inclusive)
GP - Nebuliser used	Nebuliser prescribed, prior 2 years	Prior 1 to 730 days (inclusive)
GP - Salbutamol prescribed	Salbutamol prescribed, prior 2 years	Prior 1 to 730 days (inclusive)
GP - Warfarin prescribed	Warfarin prescribed, prior 2 years	Prior 1 to 730 days (inclusive)
GP - High blood pressure	High blood pressure Read code, prior 2 years	Prior 1 to 730 days (inclusive)
GP - Smoker	Smoking status, prior 2 years	Prior 1 to 730 days (inclusive)
GP - BMI 30+	BMI greater than equal to 30, prior 2 years	Prior 1 to 730 days (inclusive)
GP - HbA1c > 10	HbA1c greater than 10, prior 2 years	Prior 1 to 730 days (inclusive)
GD - QOF ARTF	QOF register: Atrial fibrillation	Prior 1 to 730 days (inclusive)
GP - QOF CKD	QOF register: Stage 3 to 5 chronic kidney disease	Prior 1 to 730 days (inclusive)
GP - QOF Depression	QOF register: Depression	Prior 1 to 730 days (inclusive)
GP - Number of QOF DX categories 3+	QOF register: number of different registers, 3 or more	Prior 1 to 730 days (inclusive)
GP - Number of phone contacts last 0-3 months	Number of GP telephone consults prior 1-3 months	Prior 1 to 3 months (inclusive)