

Supplementary Files

Supplementary Box 1. HES database

HES database

- HES is a data warehouse containing clinical information of all admissions, bed days, length of admission, outpatient appointments, attendances at A&E departments for NHS hospitals in England and hospital death.
- It is a record-based system covering all NHS Trusts in England. This data is collected to allow hospitals to be paid for the care that they deliver.
- The primary diagnosis and other clinical conditions are specified using the tenth revision of the International Classification of Disease coding system (ICD-10).
- Each patient has their own unique NHS identifier which ensured patients were not double counted within the analysis.

Supplementary Table 1. ICD-10 codes

| # | Cohort Name | ICD-10 Codes ¹ | Outpatient Medical Speciality |
|----|-----------------------------|--|---|
| 1. | Pneumonia | J12, J13, J14, J15, J16, J17, J18 | 340 Thoracic Medicine |
| 2. | Chronic respiratory disease | J40, J41, J42, J43, J44, J47, J6, J7, J80, J81, J82, J83, J84, Q30, J31 Q32, Q33 Q34, Q35, Q36, Q37 | 170 Cardiothoracic surgery 173 Thoracic surgery 174 Cardiothoracic transplantation 340 Thoracic Medicine |
| 3. | Chronic heart disease | I05, I06, I07, I08, I09, I11, I12, I13, I20, I21, I22, I25, I27, I28, I3, I40, I41, I42, I43, I44, I45, I47, I48, I49, I50, I51, I52, Q2 | 170 Cardiothoracic surgery 172 Cardiac surgery 174 Cardiothoracic transplantation 320 Cardiology |
| 4. | Chronic kidney disease | N00, N01, N02, N03, N04, N05, N07, N08, N11, N12, N14, N15, N16, N18, N19, N25, Q60, Q61 | 102 Transplantation surgery 361 Nephrology |
| 5. | Chronic liver disease | K70, K71, K72, K73, K74, K75, K76, K77, P78.8, Q44 | 102 Transplantation surgery 105 Hepatobiliary & pancreatic surgery 306 Hepatology |
| 6. | Diabetes | E10, E11, E12, E13, E14, E24, G59.0, G63.2, G73.0, G99.0, N08.3, O24, P70.0, P70.1, P70.2 | 105 Hepatobiliary & pancreatic surgery 302 Endocrinology 307 Diabetic Medicine |
| 7. | Post-BMT | Z94.8 | 303 Clinical Haematology 308 Bone and marrow transplantation |

¹ ICD codes taken from Rozenbaum et al 2012

Supplementary Table 2. Adjusted Odds Ratios for mortality in each clinical risk group for those who developed hospitalised CAP compared to those who did not.

| Clinical Risk Group | Mortality Odds Ratio (95% CI) |
|---------------------|-------------------------------|
| CHD | 5.37 (5.18, 5.56) p<0.0001 |
| CKD | 5.26 (4.96, 5.59) p<0.0001 |
| CLD | 4.76 (4.12, 5.51) p<0.0001 |
| CRD | 5.94 (5.65, 6.24) p<0.0001 |
| Diabetes | 4.89 (4.63, 5.16) p<0.0001 |
| Post-BMT | 7.50 (4.71, 11.92) p<0.0001 |