## **Supplementary Materials**

### Table S1. Diagnostic codes used to identify comorbidities/risk factors for influenza: a) in people ≥5 years old; b) in children <5 years old

1. **Diagnostic codes used to identify comorbidities/risk factors for influenza in people ≥5 years old**

|  |  |  |  |
| --- | --- | --- | --- |
| **Broader** | **Narrow** | **ICD-9 Diagnosis codes** | **ICD-10 Diagnosis Codes** |
| Pregnancy | | 633.00 – 633.91; V22.0 – V23.9 | Z33 – Z34.93 |
| Diabetes Mellitus | | 250.xx | E08- E13 |
| Respiratory/  lung | Bronchiectasis | 748.61, 494.0, 494.1, 011.5 | J47.0, J47.1, J47.9, Q33.4 |
| Asthma | 493.xx | J45.xx (J45.20, J45.21, J45.22, J45.30, J45.31, J45.32, J45.40, J45.41, J45.42, J45.50, J45.51, J45.52, J45.901, J45.902, J45.909, J45.991, J45.998) |
| Chronic obstructive pulmonary disease (COPD) | 490-492.x; 496 | J40, J41.0, J41.1, J41.8, J42, J43.0, J43.1, J43.2, J43.8, J43.9, J44.0, J44.1, J44.9 |
| Post inflammatory pulmonary fibrosis, Chronic and other pulmonary manifestations due to radiation, Chronic respiratory disease arising in the perinatal period, Idiopathic fibrosing alveolitis, With pulmonary manifestations | 515, 508.1, 770.7, 516.3, 277.02 | J84.10, J70.1, P27, J84.112, E84.0 |
| Rheumatoid lung | 714.81 | M05.1 |
| Cardiovascular | Chronic cardiac disease | 393.xx – 398, 410.xx – 417.xx; 420.xx – 429.xx | I05.xx – I09.xx, I20.xx – I25.xx; I26.xx – 128.xx; I30.xx – I.52.xx; T80.0; T81.71; T81.72; T82.81 |
| Hypertensive Disease | 401-40 | I11.0, I11.9, I16.0, I16.1, I16.9 |
| CVD | 430 - 438.xx | I60-I69; G45-G46; |
| Peripheral vascular disease | 443.9 | I73.9 |
| High risk congenital heart disease | 745.0 - 745.4; 745.6x - 745.8; 746.01 - 746.5; 746.7 - 746.85; 746.87; 747.1x; 747.21 -747.49 | Q20-Q26 |
| Low risk congenital heart disease | 745.5; 745.9; 746.00; 746.6; 746.86; 746.89; 746.9; 747.0; 747.20; 747.83 | P29.3; Q20.9; Q21.1; Q21.9; Q22.3; Q23.3;  Q23.8; Q23.9; Q24.6; Q24.8; Q24.9; Q25.0; Q25.4 |
| Immuno-compromised | HSCT | 996.88, 996.85, 41.04 - 41.09 | T86.5. |
| Lung transplant | 996.84; V42.6, 32.3x - 32.5x; 33.5x | Z94.2, T86.83  T86.81, |
| HIV | 042.xx | B20 |
| Hematologic malignancy (leukaemia, lymphoma, multiple myeloma) | 203.xx - 208.xx; 238.4; 238.72 - 238.76; 289.83 | C81-C96 |
| Non-lung solid organ transplant | 199.2; 996.52; 996.55; 996.80 - 996.83; 996.86 - 996.89; E878.0; V42.0 - V42.3; V42.7; V42.83; V42.84; V45.87; V58.44, 07.94; 37.51; 41.94; 46.97; 50.51; 50.59; 52.80; 52.82; 52.83; 55.53; 55.69 | Z94.0, Z94.1, Z94.4, Z94.5, Z94.7, T86.1, T86.2, T86.4, Z98.85, Z48.288, Z48.298, |
| Hereditary haemolytic anaemias | 282.xx | D55.xx – D59.xx |
| Other immune deficiencies | 279.xx | D80.xx – D89.xx |
| Chronic liver disease |  | 571.xx | K70.xx – K77.xx |
| Chronic kidney disease |  | 403.00, 403.1, 585.1, 585.2, 585.3, 585.4, 585.5, 585.6, 585.9 | I12.0, I12.9, N18.1, N18.2, N18.3, N18.4, N18.5, N18.6, N18. |

1. **Diagnostic codes used to identify comorbidities/risk factors for influenza in children <5 years old**

|  |  |  |  |
| --- | --- | --- | --- |
| **Broader** | **Narrow** | **ICD-9 Diagnosis codes** | **ICD-10** |
| Cardiopulmonary | Chronic cardiac disease | 393.xx – 398, 410.xx – 417.xx; 420.xx – 429.xx | I05.xx – I09.xx, I20.xx – I25.xx; I26.xx – 128.xx; I30.xx – I.52.xx; T80.0; T81.71; T81.72; T82.81 |
| CVD | 430 - 438.xx | I60-I69; G45-G46; |
| Hypertension | 401.xx – 405.xx | I11.0, I11.9, I16.0, I16.1, I16.9 |
| Peripheral vascular disease | 443.9 | I73.9 |
| High risk congenital heart disease | 745.0 - 745.4; 745.6x - 745.8; 746.01 - 746.5; 746.7 - 746.85; 746.87; 747.1x; 747.21 - 747.49 | Q20-Q26 |
| Low risk congenital heart disease | 745.5; 745.9; 746.00; 746.6; 746.86; 746.89; 746.9; 747.0; 747.20; 747.83 | P29.3; Q20.9; Q21.1; Q21.9; Q22.3; Q23.3;  Q23.8; Q23.9; Q24.6; Q24.8; Q24.9; Q25.0; Q25.4 |
| BDP | 770.7x | P27 |
| Respiratory/Lung disease | Bronchiectasis | 494, 748.61, 494.0, 011.5 | J47.0, J47.1, J47.9, Q33.4 |
| Interstitial pulmonary fibrosis of prematurity, Wilson-Mikity syndrome | 770.7x | P 27 |
| Wilson-Mikity syndrome | 770.7x | P27.0 |
| Congenital anomalies of respiratory system | 748., | Q30-Q34 |
| Chronic perinatal respiratory disease | 770.7x | P28 |
| Other lung pathologies | 507.1; 514; 516.8; 517.2 - 517.8 | J69, J84.09, M34.8 |
| Cystic fibrosis | 277.0x | E84 |
| Other comorbidities | Down syndrome with CHD | 758.0 (down syndrome) | Q90 |
| Neuromuscular impairment | 330.x; 335.xx; 343.x; 356.x; 358.1; 359.0 - 359.23 | E75.0; E75.1; E75.2; E75.4; F84.2; G12; G31.8; G31.9; G60; G71.0-G71.3; G80 (excl. G80.3); G93.8; G93.9 |
| Immunocompromised | HSCT | 996.88, 996.85, 41.04 - 41.09 | T86.5. |
| Lung transplant | 996.84; V42.6, 32.3x - 32.5x; 33.5x | Z94.2, T86.83  T86.81, |
| HIV | 042.xx | B20 |
| Hematologic malignancy (leukaemia, lymphoma, multiple myeloma) | 203.xx - 208.xx; 238.4; 238.72 - 238.76; 289.83 | C81-C96 |
| Non-lung solid organ transplant | 199.2; 996.52; 996.55; 996.80 - 996.83; 996.86 - 996.89; E878.0; V42.0 - V42.3; V42.7; V42.83; V42.84; V45.87; V58.44, 07.94; 37.51; 41.94; 46.97; 50.51; 50.59; 52.80; 52.82; 52.83; 55.53; 55.69 | Z94.0, Z94.1, Z94.4, Z94.5, Z94.7, T86.1, T86.2, T86.4, Z98.85, Z48.288, Z48.298, |
| Hereditary haemolytic anaemias | 282.xx | D55.xx – D59.xx |
| Other immune deficiencies | 279.xx | D80.xx – D89.xx |

### Table S2. Performance of the excess hospitalization model per age group and cause

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Age group (in years)** | **Pneumonia or influenza** | | **Respiratory** | | **Respiratory or cardiovascular** | | **All cause** | |
| ***r*** | **MAPE** | ***r*** | **MAPE** | ***r*** | **MAPE** | ***r*** | **MAPE** |
| **0-4** | 98% | 12% | 98% | 8% | 98% | 8% | 97% | 3% |
| **5-18** | 94% | 18% | 93% | 8% | 93% | 7% | 93% | 4% |
| **19-49** | 93% | 14% | 94% | 6% | 94% | 4% | 92% | 2% |
| **50-64** | 96% | 8% | 97% | 5% | 96% | 3% | 92% | 3% |
| **65-74** | 97% | 7% | 97% | 5% | 97% | 3% | 93% | 3% |
| **≥75** | 98% | 6% | 98% | 5% | 98% | 3% | 96% | 2% |
| **≥65** | 98% | 6% | 98% | 5% | 98% | 3% | 95% | 2% |
| **All age** | 98% | 6% | 98% | 5% | 98% | 3% | 93% | 2% |

*r* – Person’s correlation; MAPE - Mean absolute percentage error.

### Table S3. Performance of the excess deaths model per age group and cause

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Age group (in years)** | **Pneumonia or influenza** | | **Respiratory** | | **Respiratory or cardiovascular** | | **All cause** | |
| ***R*** | **MAPE** | ***r*** | **MAPE** | ***r*** | **MAPE** | ***r*** | **MAPE** |
| **0-4** | 71% | 46% | 76% | 39% | 66% | 51% | 79% | 8% |
| **5-18** | 82% | 44% | 59% | 39% | 56% | 36% | 79% | 11% |
| **19-49** | 84% | 32% | 85% | 13% | 88% | 5% | 96% | 2% |
| **50-64** | 91% | 22% | 94% | 8% | 95% | 3% | 96% | 2% |
| **65-74** | 92% | 13% | 97% | 5% | 98% | 3% | 97% | 2% |
| **≥75** | 98% | 7% | 98% | 5% | 98% | 3% | 98% | 2% |
| **≥65** | 97% | 7% | 98% | 5% | 98% | 2% | 98% | 2% |
| **All age** | 97% | 7% | 98% | 5% | 98% | 2% | 98% | 2% |

*r* – Person’s correlation; MAPE - Mean absolute percentage error.

### Table S4. Estimated influenza-associated excess pneumonia or influenza, respiratory, and all-cause excess hospitalizations, in absolute and per 100,000 people, by age group and epidemic season in Spanish public hospitals between 2008/2009 and 2017/2018

| **Season** | **Number of excess hospitalizations** | | | | | | | | | **Rate of excess hospitalizations per 100,000 (95% CI)** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **0-4** | **5-18** | **19-49** | **50-64** | **65-74** | **≥75** | **≥65** | **All ages** | **60-64** | **0-4** | **5-18** | **19-49** | **50-64** | **65-74** | **≥75** | **≥65** | **All ages** | **60-64** |
| **Pneumonia or influenza influenza-associated hospitalizations** | | | | | | | | | | | | | | | | | | |
| 2008/ 2009 | 28 | - | 438 | 568 | 785 | 2,859 | 3,703 | 4,859 | 390 | 1.2 (-8.4; 11.1) | -1.8 (-4.2; 0.8) | 2 (0.3; 3.9) | 7.3 (4.4; 10.3) | 20.9 (15; 27) | 74.8 (57.1; 92.3) | 48.8 (37.2; 60.2) | 10.6 (7.6; 13.8) | 16.4 (12.6; 20.4) |
| 2009/ 2010 | 1,930 | 2,332 | 5,565 | 2,530 | 1,118 | 290 | 1,426 | 14,616 | 582 | 77.6 (71.8; 83.9) | 37.6 (35.5; 38.3) | 25.4 (23.6; 25.6) | 31.7 (29.3; 33.3) | 29.5 (24.8; 34.3) | 7.4 (-8.6; 22.3) | 18.4 (9; 27.8) | 31.5 (29.1; 33.6) | 24 (21; 26.6) |
| 2010/ 2011 | 1,749 | 411 | 2,995 | 2,690 | 1,564 | 2,741 | 4,438 | 12,286 | 928 | 70 (63.1; 76.8) | 6.6 (4.7; 8.4) | 13.8 (12.5; 15.2) | 33 (30.6; 35.6) | 40.7 (35.1; 46.4) | 67.6 (51.2; 84.1) | 56.2 (45.8; 66.6) | 26.4 (23.6; 29.3) | 38 (34.9; 41.7) |
| 2011/ 2012 | 836 | 122 | 600 | 997 | 1,785 | 7,153 | 9,147 | 11,777 | 495 | 33.6 (27.4; 40.6) | 1.9 (0.2; 3.7) | 2.8 (1.5; 4.3) | 12 (9.3; 14.8) | 45.9 (40.6; 51.8) | 171.6 (155.4; 186.8) | 113.6 (103; 123.6) | 25.2 (22.5; 28.1) | 20.2 (16.7; 23.7) |
| 2012/ 2013 | 191 | 55 | 1,361 | 1,359 | 816 | 2,029 | 3,033 | 6,191 | 465 | 7.8 (1.1; 14.7) | 0.9 (-0.9; 2.6) | 6.4 (5.1; 7.8) | 16 (13.6; 18.4) | 20.7 (15.3; 26.5) | 47.7 (31.4; 65.2) | 37 (26.5; 48.4) | 13.2 (10.4; 16.1) | 18.7 (15.5; 22.3) |
| 2013/ 2014 | 1,379 | 324 | 2,764 | 2,880 | 2,285 | 5,331 | 7,730 | 15,294 | 1,058 | 58.2 (52.9; 63.1) | 5 (3.5; 6.5) | 13.3 (12.2; 14.2) | 33.3 (31.1; 34.9) | 56.3 (51.6; 60.4) | 124.2 (110.4; 136.9) | 92.5 (83.4; 100.5) | 32.8 (30.4; 35) | 42.4 (39.5; 44.8) |
| 2014/ 2015 | 1,048 | 553 | 1,595 | 2,389 | 2,867 | 11,229 | 14,061 | 19,874 | 1,012 | 45.8 (40; 51.7) | 8.5 (7; 9.9) | 7.8 (6.6; 8.9) | 27.1 (24.9; 28.9) | 67.9 (62.8; 72.5) | 261.5 (244.9; 271.9) | 165.1 (154.6; 172.2) | 42.8 (40; 44.7) | 40.5 (37.3; 43.1) |
| 2015/ 2016 | 1,691 | 960 | 2,994 | 3,502 | 2,381 | 3,890 | 6,344 | 15,785 | 1,330 | 75.8 (69.1; 81.7) | 14.7 (12.9; 16.2) | 14.9 (13.5; 16.3) | 38.9 (36.2; 41.5) | 55.2 (49.8; 60.3) | 89.9 (72.1; 106) | 73.4 (62.3; 83.7) | 34 (31; 36.8) | 52.4 (48.6; 55.4) |
| 2016/ 2017 | 610 | 160 | 1,350 | 2,690 | 3,654 | 15,571 | 19,361 | 24,188 | 1,223 | 28 (21.4; 34.1) | 2.4 (0.8; 4) | 6.8 (5.6; 8.2) | 29.2 (27; 31.7) | 83.5 (78.6; 88.5) | 355.3 (342.4; 370) | 221.1 (212.4; 230.3) | 52 (49.6; 54.6) | 47 (43.7; 50.2) |
| 2017/ 2018 | 1,609 | 923 | 2,789 | 5,277 | 6,628 | 20,461 | 27,274 | 37,821 | 2,220 | 75.6 (68.3; 82.3) | 13.8 (12.1; 15.4) | 14.3 (12.9; 15.7) | 56.1 (53.5; 58.3) | 148 (141.6; 152.7) | 463.9 (445.4; 476.7) | 306.8 (295.5; 314.6) | 81.2 (78; 83.6) | 83 (79.4; 86.1) |
| **Respiratory influenza-associated hospitalizations** | | | | | | | | | | | | | | | | | | |
| 2008/2009 | - a | - a | 348 | 1,555 | 2,527 | 9,037 | 11,690 | 9,069 | 865 | - a | - a | 1.6 (-1.7; 4.7) | 19.9 (13.9; 25.8) | 67.1 (50.7; 82.7) | 236.5 (187.3; 284.1) | 154.1 (121.9; 184.7) | 19.7 (11.3; 27.8) | 36.4 (27.4; 45.2) |
| 2009/2010 | 429 | 2,406 | 6,855 | 3,459 | 1,499 | 343 | 1,808 | 16,518 | 747 | 17.3 (-16.1; 52.1) | 38.8 (34.2; 43.7) | 31.2 (29.2; 33.2) | 43.3 (39; 47) | 39.5 (27.9; 51.4) | 8.7 (-28.1; 48.3) | 23.4 (-0.5; 48.8) | 35.6 (29.5; 41.8) | 30.8 (24.2; 37.1) |
| 2010/2011 | 1,191 | 355 | 4,688 | 5,556 | 3,858 | 7,059 | 11,149 | 23,410 | 2,035 | 47.7 (10.5; 85.9) | 5.7 (0.2; 11.9) | 21.5 (18.9; 24) | 68.1 (62.9; 72.8) | 100.4 (86.4; 114) | 174.1 (131.7; 216) | 141.2 (113.7; 167.7) | 50.3 (42.6; 57.3) | 83.3 (75.7; 90.8) |
| 2011/2012 | - a | - a | 1,131 | 2,895 | 5,288 | 24,167 | 29,812 | 32,885 | 1,499 | - a | - a | 5.2 (2.7; 7.9) | 34.7 (29.6; 40) | 136 (123.3; 149.1) | 579.9 (539.6; 622.5) | 370.1 (343.6; 397.7) | 70.4 (63.3; 77.6) | 61.1 (53; 69) |
| 2012/2013 | - a | - a | 1,876 | 3,044 | 2,588 | 8,061 | 11,025 | 13,764 | 1,062 | - a | - a | 8.8 (6.4; 11.2) | 35.8 (30.9; 40.5) | 65.6 (52.6; 78.5) | 189.6 (148.1; 231) | 134.5 (107.2; 160.4) | 29.4 (22.4; 36.3) | 42.8 (35.4; 50.2) |
| 2013/2014 | 1,484 | 195 | 3,718 | 4,944 | 4,189 | 11,300 | 15,541 | 26,384 | 1,930 | 62.6 (33.1; 93) | 3 (-1.9; 8.2) | 17.8 (15.8; 19.7) | 57.2 (52.8; 61) | 103.1 (91; 113.8) | 263.3 (227; 298.6) | 186.1 (163; 208.5) | 56.6 (50.4; 62.1) | 77.3 (70.8; 83.2) |
| 2014/2015 | 646 | 737 | 2,192 | 4,225 | 5,759 | 25,556 | 30,959 | 39,304 | 1,824 | 28.2 (-2.7; 62.9) | 11.4 (6.7; 16.4) | 10.8 (8.6; 12.9) | 48 (43.3; 52.3) | 136.3 (123.5; 148) | 595.2 (554.1; 626.4) | 363.4 (337.6; 384.4) | 84.6 (77.9; 90.5) | 73 (65.5; 79.6) |
| 2015/2016 | 904 | 2,088 | 4,342 | 4,337 | 2,622 | 5,411 | 7,956 | 20,115 | 1,530 | 40.5 (1.8; 77.9) | 31.9 (26.3; 37.5) | 21.7 (19.2; 24.1) | 48.2 (43; 53.2) | 60.8 (47.6; 73.7) | 125 (80.5; 172) | 92.1 (63.7; 121.5) | 43.3 (35.4; 50.6) | 60.3 (52.3; 67.7) |
| 2016/2017 | - a | - a | 1,115 | 3,589 | 5,479 | 27,417 | 33,124 | 36,407 | 1,792 | - a | - a | 5.7 (3.1; 8.2) | 39 (33.9; 43.7) | 125.2 (111.1; 137.7) | 625.6 (585.5; 664.4) | 378.2 (351.7; 403.9) | 78.3 (71; 85.2) | 68.9 (61.1; 76.3) |
| 2017/2018 | - a | 1,137 | 3,124 | 9,591 | 13,138 | 39,304 | 52,781 | 64,390 | 4,400 | - a | 17 (11.1; 23.3) | 16 (13.6; 18.8) | 101.9 (96.1; 106.7) | 293.3 (277; 305.8) | 891 (841.1; 932) | 593.7 (561.4; 619.4) | 138.2 (129.5; 145.7) | 164.5 (155.4; 171.5) |
| **All-cause influenza-associated hospitalizations** | | | | | | | | | | | | | | | | | | |
| 2008/2009 | - a | 811 | - a | - a | 2,318 | 8,665 | 6,862 | - a | - a | - a | 13.2 (-6.6; 33.9) | - a | - a | 61.6 (-24.9; 145) | 226.8 (103.2; 348) | 90.5 (-10.2; 180.8) | - a | - a |
| 2009/2010 | - a | 1,974 | 514 | 3,210 | - a | - a | - a | 3,029 | 634 | - a | 31.8 (18.4; 45.7) | 2.3 (-14.1; 19.2) | 40.2 (5.2; 75.4) | - a | - a | - a | 6.5 (-21.5; 36.2) | 26.1 (-20.6; 70.5) |
| 2010/2011 | 4,002 | 526 | 7,078 | 8,885 | 5,842 | 11,092 | 13,759 | 36,546 | 3,814 | 160.2 (109.7; 209.6) | 8.4 (-10.1; 25) | 32.5 (12.2; 49.5) | 108.9 (62.7; 149) | 152 (72.3; 224.4) | 273.6 (161; 378.8) | 174.2 (85.7; 254.9) | 78.5 (42.8; 109.9) | 156.1 (98.1; 208.9) |
| 2011/2012 | 1,632 | - a | - a | - a | 3,099 | 33,128 | 39,696 | 34,244 | 1,275 | 65.6 (13; 122.1) | - a | - a | - a | 79.7 (0; 162.3) | 794.9 (684.6; 911.7) | 492.8 (404.3; 583.5) | 73.3 (35.7; 110.4) | 52 (-7.2; 109.8) |
| 2012/2013 | - a | 27 | - a | 737 | 543 | 9,681 | 8,980 | 960 | 960 | - a) | 0.4 (-17.5; 15.7) | - a | 8.7 (-34.2; 50.7) | 13.8 (-64.7; 83.3) | 227.7 (118.3; 339.6) | 109.6 (25.4; 190.9) | 2.1 (-31.3; 34.9) | 38.6 (-16.1; 91.6) |
| 2013/2014 | 4,032 | 610 | 1,175 | 6,529 | 5,688 | 12,966 | 18,970 | 35,560 | 3,141 | 170.1 (127.5; 216.7) | 9.5 (-5.3; 24.9) | 5.6 (-12.4; 21.4) | 75.5 (35.8; 114.5) | 140 (68.9; 207) | 302.1 (202.6; 401.1) | 227.1 (143.4; 300.7) | 76.3 (44.9; 107.2) | 125.8 (75.9; 171.6) |
| 2014/2015 | 1,891 | - a | - a | - a | 3,162 | 37,633 | 35,989 | 35,464 | 541 | 82.7 (43.9; 128.7) | - a | - a | - a | 74.8 (8.9; 147.3) | 876.5 (785; 969.5) | 422.5 (350.1; 500.1) | 76.3 (48.2; 108.2) | 21.6 (-24.7; 75.3) |
| 2015/2016 | 3,349 | 3,542 | 10,829 | 6,517 | 6,736 | 16,256 | 24,477 | 53,181 | 2,947 | 150.2 (100.6; 205.9) | 54.1 (37.6; 72.3) | 54.1 (35; 73.3) | 72.4 (28.4; 117.7) | 156.1 (82.1; 231.9) | 375.6 (268.9; 495.7) | 283.2 (196.8; 373.2) | 114.5 (80.3; 150.5) | 116.1 (61.4; 173.2) |
| 2016/2017 | - a | - a | - a | - a | 4,827 | 37,435 | 38,290 | 32,775 | 118 | - a | - a | - a | - a | 110.3 (37.3; 179.6) | 854.1 (747.4; 955.7) | 437.2 (352.2; 513.7) | 70.5 (38.6; 103) | 4.5 (-50.3; 55.1) |
| 2017/2018 | - a | 1,108 | - a | 4,320 | 8,497 | 39,349 | 48,898 | 48,313 | 2,648 | - a | 16.6 (-0.1; 35.5) | - a | 45.9 (0.7; 94.2) | 189.7 (109; 274.7) | 892.1 (786; 1009.5) | 550 (465.8; 641.7) | 103.7 (68.3; 142.4) | 99 (44; 159.3) |

Abbreviations: CI - Confidence interval.

a No influenza-associated excess hospitalizations estimated for this age group/season.

### Table S5. Estimated influenza-associated excess pneumonia or influenza, respiratory, and respiratory or cardiovascular deaths, in absolute and per 100,000 people, by age group and epidemic season in Spain between 2008/2009 and 2017/2018

| **Season** |  | **Number of excess deaths** | | | | | | | | | **Rate of excess deaths per 100,000 (95% CI)** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **0-4** | **5-18** | **19-49** | **50-64** | **65-74** | **≥75** | **≥65** | **All ages** | **60-64** | **0-4** | **5-18** | **19-49** | **50-64** | **65-74** | **≥75** | **≥65** | **All ages** | **60-64** |
| **Pneumonia or influenza influenza-associated deaths** | | | | | | | | | | | | | | | | | | | |
| 2008/ 2009 |  | 5 | - a | 23 | 74 | 81 | 1,066 | 1,134 | 1,301 | 33 | 0.2 (0.1; 0.3) | - a | 0.1 (0; 0.2) | 0.9 (0.6; 1.3) | 2.2 (1.2; 3.2) | 27.9 (21.6; 34.3) | 15 (11.4; 18.5) | 2.8 (2.2; 3.5) | 1.4 (0.8; 2) |
| 2009/ 2010 |  | 7 | 12 | 79 | 51 | 25 | 3 | 26 | 227 | 22 | 0.3 (0.2; 0.3) | 0.2 (0.2; 0.2) | 0.4 (0.3; 0.4) | 0.6 (0.4; 0.9) | 0.7 (-0.1; 1.5) | 0.1 (-4.7; 5.1) | 0.3 (-2.3; 3.1) | 0.5 (0; 1) | 0.9 (0.4; 1.4) |
| 2010/ 2011 |  | - a | 0 | 71 | 110 | 45 | 292 | 331 | 488 | 31 | - a | 0 (0; 0) | 0.3 (0.3; 0.4) | 1.4 (1.1; 1.6) | 1.2 (0.4; 2.1) | 7.2 (2.3; 12.1) | 4.2 (1.5; 6.9) | 1 (0.5; 1.6) | 1.3 (0.8; 1.8) |
| 2011/ 2012 |  | - a | 0 | - | 13 | 59 | 1,270 | 1,338 | 1,301 | 31 | - a | 0 (0; 0) | 0 (-0.1; 0.1) | 0.2 (-0.1; 0.5) | 1.5 (0.7; 2.4) | 30.5 (25; 35.7) | 16.6 (13.5; 19.5) | 2.8 (2.2; 3.3) | 1.3 (0.8; 1.9) |
| 2012/ 2013 |  | - a | 0 | 2 | 17 | 12 | 121 | 140 | 63 | 12 | - a | 0 (0; 0) | 0 (-0.1; 0.1) | 0.2 (-0.1; 0.6) | 0.3 (-0.6; 1.2) | 2.8 (-2.7; 8.6) | 1.7 (-1.4; 4.8) | 0.1 (-0.4; 0.8) | 0.5 (-0.1; 1.1) |
| 2013/ 2014 |  | 6 | 3 | 77 | 116 | 91 | 626 | 700 | 866 | 50 | 0.3 (0.2; 0.3) | 0 (0; 0.1) | 0.4 (0.3; 0.4) | 1.3 (1.1; 1.6) | 2.2 (1.5; 3) | 14.6 (9.8; 19.1) | 8.4 (5.6; 11) | 1.9 (1.3; 2.4) | 2 (1.5; 2.4) |
| 2014/ 2015 |  | - a | - a | 19 | 75 | 137 | 1,826 | 1,909 | 1,943 | 35 | - a | - a | 0.1 (0; 0.2) | 0.9 (0.6; 1.2) | 3.3 (2.4; 4.1) | 42.5 (37.1; 47.7) | 22.4 (19.4; 25.3) | 4.2 (3.6; 4.7) | 1.4 (0.9; 2) |
| 2015/ 2016 |  | 2 | 4 | 51 | 88 | 83 | 218 | 277 | 395 | 31 | 0.1 (0; 0.2) | 0.1 (0; 0.1) | 0.3 (0.2; 0.3) | 1 (0.7; 1.3) | 1.9 (1.1; 2.7) | 5 (-0.1; 10.8) | 3.2 (0.3; 6.4) | 0.9 (0.3; 1.5) | 1.2 (0.7; 1.7) |
| 2016/ 2017 |  | 1 | 1 | 14 | 92 | 144 | 2,130 | 2,260 | 2,340 | 50 | 0.1 (0; 0.1) | 0 (0; 0) | 0.1 (0; 0.2) | 1 (0.8; 1.3) | 3.3 (2.7; 4) | 48.6 (44.8; 52.9) | 25.8 (23.7; 28.2) | 5 (4.6; 5.5) | 1.9 (1.5; 2.3) |
| 2017/ 2018 |  | 5 | 5 | 42 | 185 | 281 | 2,622 | 2,895 | 3,139 | 94 | 0.2 (0.1; 0.3) | 0.1 (0; 0.1) | 0.2 (0.1; 0.3) | 2 (1.7; 2.2) | 6.3 (5.3; 6.9) | 59.4 (54; 64.6) | 32.6 (29.4; 35.3) | 6.7 (6.1; 7.2) | 3.5 (3; 3.9) |
| **Respiratory influenza-associated deaths** | | | | | | | | | | | | | | | | | | | |
| 2008/2009 |  | 6 | 1 | 29 | 220 | 430 | 3,897 | 4,492 | 4,685 | 102 | 0.2 (0.1; 0.5) | 0 (0; 0.1) | 0.1 (-0.1; 0.3) | 2.8 (2; 3.7) | 11.4 (9.1; 13.9) | 102.1 (83.2; 121.7) | 59.2 (49.3; 69.8) | 10.2 (8.3; 12.1) | 4.3 (3; 5.9) |
| 2009/2010 |  | 7 | 13 | 108 | 52 | 105 | 279 | 378 | 597 | 44 | 0.3 (0.1; 0.4) | 0.2 (0.2; 0.3) | 0.5 (0.4; 0.6) | 0.6 (0.1; 1.3) | 2.8 (0.9; 4.8) | 7.1 (-9.1; 23) | 4.9 (-4; 13.2) | 1.3 (-0.3; 2.8) | 1.8 (0.7; 3.1) |
| 2010/2011 |  | - a | 4 | 133 | 265 | 196 | 964 | 1,064 | 1,511 | 100 | - a | 0.1 (0; 0.1) | 0.6 (0.5; 0.7) | 3.2 (2.7; 3.9) | 5.1 (3.2; 7.1) | 23.8 (8.5; 39.7) | 13.5 (5.1; 22.6) | 3.2 (1.7; 4.8) | 4.1 (3; 5.4) |
| 2011/2012 |  | - a | - a | 23 | 137 | 329 | 5,345 | 5,548 | 5,807 | 95 | - a | - a | 0.1 (0; 0.3) | 1.6 (1; 2.4) | 8.5 (6.4; 10.6) | 128.2 (110.8; 145.7) | 68.9 (59.2; 78.3) | 12.4 (10.7; 14.2) | 3.9 (2.6; 5.3) |
| 2012/2013 |  | - a | - a | 44 | 111 | 85 | 513 | 402 | 643 | 38 | - a | - a | 0.2 (0.1; 0.4) | 1.3 (0.6; 2) | 2.2 (-0.1; 4.4) | 12.1 (-6.9; 29.8) | 4.9 (-5.4; 14.9) | 1.4 (-0.5; 3.1) | 1.5 (0.1; 2.8) |
| 2013/2014 |  | 5 | - a | 116 | 204 | 250 | 1,946 | 1,981 | 2,464 | 73 | 0.2 (0.1; 0.4) | - a | 0.6 (0.4; 0.7) | 2.4 (1.8; 2.9) | 6.2 (4.2; 8) | 45.4 (28.8; 60.5) | 23.7 (14.7; 31.9) | 5.3 (3.7; 6.8) | 2.9 (1.8; 4) |
| 2014/2015 |  | - a | - a | 49 | 274 | 573 | 6,757 | 6,983 | 7,428 | 129 | - a | - a | 0.2 (0.1; 0.4) | 3.1 (2.5; 3.8) | 13.6 (11.5; 15.5) | 157.4 (140.1; 173.4) | 82 (72.8; 90.7) | 16 (14.2; 17.6) | 5.2 (4.1; 6.5) |
| 2015/2016 |  | 2 | 2 | 88 | 149 | 99 | 487 | 479 | 749 | 55 | 0.1 (-0.1; 0.2) | 0 (0; 0.1) | 0.4 (0.3; 0.6) | 1.7 (1; 2.4) | 2.3 (0.3; 4.4) | 11.3 (-6.7; 29.1) | 5.5 (-4.2; 14.9) | 1.6 (-0.2; 3.4) | 2.2 (0.9; 3.6) |
| 2016/2017 |  | - a | - a | 40 | 237 | 392 | 5,787 | 6,264 | 6,394 | 131 | - a | - a | 0.2 (0.1; 0.3) | 2.6 (2.1; 3.2) | 9 (7.4; 10.8) | 132 (118.4; 146.1) | 71.5 (63.8; 79.8) | 13.8 (12.3; 15.2) | 5 (4; 6.1) |
| 2017/2018 |  | 4 | 4 | 56 | 312 | 683 | 6,735 | 7,773 | 7,797 | 185 | 0.2 (-0.1; 0.3) | 0.1 (0; 0.1) | 0.3 (0.1; 0.4) | 3.3 (2.7; 4) | 15.2 (13.2; 17.1) | 152.7 (134.7; 168.9) | 87.4 (78.3; 95.2) | 16.7 (14.9; 18.3) | 6.9 (5.8; 8.1) |
| **Respiratory or cardiovascular influenza-associated deaths** | | | | | | | | | | | | | | | | | | | |
| 2008/2009 |  | 19 | 6 | 128 | 439 | 896 | 7,329 | 8,140 | 9,019 | 333 | 0.8 (0.5; 1.1) | 0.1 (0; 0.2) | 0.6 (0.2; 0.9) | 5.6 (3.9; 7.5) | 23.8 (18.4; 29.2) | 191.9 (153.7; 234.3) | 107.4 (86.6; 129.9) | 19.6 (15.8; 23.9) | 14 (10.8; 17.4) |
| 2009/2010 |  | 12 | 17 | 160 | 68 | 25 | 27 | - a | 185 | 66 | 0.5 (0.2; 0.7) | 0.3 (0.2; 0.4) | 0.7 (0.5; 1) | 0.8 (-0.5; 2.4) | 0.7 (-3.5; 4.5) | 0.7 (-30.1; 33.1) | - a | 0.4 (-2.7; 3.8) | 2.7 (0.1; 5.5) |
| 2010/2011 |  | 5 | - a | 156 | 442 | 356 | 1,898 | 2,327 | 3,001 | 196 | 0.2 (-0.1; 0.5) | - a | 0.7 (0.5; 1) | 5.4 (4.1; 7) | 9.3 (5; 13.5) | 46.8 (16.4; 83) | 29.5 (13.1; 48.3) | 6.4 (3.4; 9.9) | 8 (5.4; 10.9) |
| 2011/2012 |  | - a | - a | - a | 372 | 715 | 11,813 | 12,855 | 13,220 | 228 | - a | - a | - a | 4.5 (2.9; 6.1) | 18.4 (13.9; 22.7) | 283.4 (247.4; 319.8) | 159.6 (140.6; 178.5) | 28.3 (24.7; 32) | 9.3 (6.2; 12.5) |
| 2012/2013 |  | - a | - a | 36 | 291 | 86 | 1,302 | 1,662 | 1,974 | 115 | - a | - a | 0.2 (-0.1; 0.5) | 3.4 (1.8; 5.2) | 2.2 (-2.5; 6.9) | 30.6 (-5.3; 66.4) | 20.3 (0.2; 40.5) | 4.2 (0.4; 8) | 4.6 (1.3; 7.7) |
| 2013/2014 |  | 6 | - a | 147 | 444 | 414 | 3,668 | 3,990 | 4,933 | 190 | 0.3 (0; 0.5) | - a | 0.7 (0.4; 0.9) | 5.1 (3.9; 6.5) | 10.2 (6; 14.1) | 85.5 (55.1; 115.5) | 47.8 (30.6; 63.6) | 10.6 (7.3; 13.7) | 7.6 (5; 10.2) |
| 2014/2015 |  | 5 | - a | 51 | 424 | 1,174 | 13,936 | 14,464 | 15,443 | 208 | 0.2 (0; 0.5) | - a | 0.3 (0; 0.5) | 4.8 (3.4; 6.5) | 27.8 (23.1; 32.2) | 324.5 (291.2; 358.6) | 169.8 (151.2; 188.5) | 33.2 (29.7; 36.8) | 8.3 (5.5; 11.3) |
| 2015/2016 |  | - a | 2 | 138 | 299 | 229 | 1,462 | 1,472 | 2,228 | 118 | - a | 0 (-0.1; 0.1) | 0.7 (0.4; 1) | 3.3 (1.8; 5) | 5.3 (0.4; 9.6) | 33.8 (-4.6; 71.8) | 17 (-3.7; 36.8) | 4.8 (1; 8.6) | 4.6 (1.5; 7.8) |
| 2016/2017 |  | 5 | 2 | 32 | 378 | 775 | 10,575 | 11,328 | 11,884 | 229 | 0.2 (0; 0.5) | 0 (-0.1; 0.1) | 0.2 (-0.1; 0.4) | 4.1 (2.9; 5.6) | 17.7 (13.8; 21.6) | 241.3 (215.8; 271.3) | 129.3 (114.5; 145.3) | 25.6 (22.9; 28.7) | 8.8 (6.3; 11.7) |
| 2017/2018 |  | 6 | 7 | 79 | 519 | 1,064 | 11,026 | 12,246 | 12,807 | 305 | 0.3 (0; 0.5) | 0.1 (0; 0.2) | 0.4 (0.1; 0.7) | 5.5 (4; 7.1) | 23.7 (19; 28) | 250 (214.4; 285.5) | 137.7 (118.3; 156.3) | 27.5 (23.8; 31) | 11.4 (8.5; 14.5) |

Abbreviations: CI - Confidence interval.

a No influenza-associated excess death estimated for this age group/season.

### Table S6. P-value associated to the ILI variables of estimated influenza-associated excess hospitalization

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Season** | **Age group (in years)** | | | | | | | | |
| **0-4** | **5-18** | **19-49** | **50-64** | **65-74** | **≥75** | **≥65** | **All age** | **60-64** |
| **Pneumonia or influenza influenza-associated hospitalizations** | | | | | | | | | |
| 2008/2009 | 0.87 | 0.24 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2009/2010 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.00 | 0.00 | 0.00 |
| 2010/2011 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2011/2012 | 0.00 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2012/2013 | 0.08 | 0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2013/2014 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2014/2015 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2015/2016 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2016/2017 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2017/2018 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Respiratory influenza-associated hospitalizations** | | | | | | | | | |
| 2008/2009 | 0.00 | 0.45 | 0.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2009/2010 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.67 | 0.08 | 0.00 | 0.00 |
| 2010/2011 | 0.08 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2011/2012 | 0.00 | 0.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2012/2013 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2013/2014 | 0.00 | 0.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2014/2015 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2015/2016 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2016/2017 | 0.01 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2017/2018 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Respiratory or cardiovascular influenza-associated hospitalizations** | | | | | | | | | |
| 2008/2009 | 0.00 | 0.42 | 0.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2009/2010 | 0.37 | 0.00 | 0.00 | 0.00 | 0.11 | 0.11 | 0.41 | 0.00 | 0.00 |
| 2010/2011 | 0.08 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2011/2012 | 0.00 | 0.39 | 0.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2012/2013 | 0.00 | 0.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2013/2014 | 0.01 | 0.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2014/2015 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2015/2016 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2016/2017 | 0.00 | 0.24 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2017/2018 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **All-cause influenza-associated hospitalizations** | | | | | | | | | |
| 2008/2009 | 0.00 | 0.30 | 0.01 | 0.27 | 0.26 | 0.00 | 0.13 | 0.78 | 0.69 |
| 2009/2010 | 0.63 | 0.00 | 0.83 | 0.08 | 0.93 | 0.07 | 0.36 | 0.72 | 0.38 |
| 2010/2011 | 0.00 | 0.44 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2011/2012 | 0.05 | 0.03 | 0.02 | 0.86 | 0.10 | 0.00 | 0.00 | 0.00 | 0.15 |
| 2012/2013 | 0.00 | 0.97 | 0.01 | 0.76 | 0.78 | 0.00 | 0.04 | 0.92 | 0.28 |
| 2013/2014 | 0.00 | 0.32 | 0.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2014/2015 | 0.00 | 0.99 | 0.00 | 0.58 | 0.10 | 0.00 | 0.00 | 0.00 | 0.51 |
| 2015/2016 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2016/2017 | 0.02 | 0.57 | 0.00 | 0.56 | 0.02 | 0.00 | 0.00 | 0.00 | 0.89 |
| 2017/2018 | 0.00 | 0.13 | 0.01 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |

### Table S7. P-value associated to the ILI variables of estimated influenza-associated excess deaths

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Season** | **Age group (in years)** | | | | | | | | |
| **0-4** | **5-18** | **19-49** | **50-64** | **65-74** | **≥75** | **≥65** | **All age** | **60-64** |
| **Pneumonia or influenza influenza-associated deaths** | | | | | | | | | |
| 2008/2009 | 0.00 | 0.42 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2009/2010 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.98 | 0.83 | 0.09 | 0.00 |
| 2010/2011 | 0.88 | 0.74 | 0.00 | 0.00 | 0.02 | 0.03 | 0.02 | 0.00 | 0.00 |
| 2011/2012 | 0.76 | 0.89 | 0.92 | 0.53 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2012/2013 | 0.26 | 0.82 | 0.88 | 0.38 | 0.59 | 0.45 | 0.41 | 0.74 | 0.22 |
| 2013/2014 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2014/2015 | 0.68 | 0.34 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2015/2016 | 0.18 | 0.01 | 0.00 | 0.00 | 0.00 | 0.18 | 0.12 | 0.04 | 0.00 |
| 2016/2017 | 0.16 | 0.56 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2017/2018 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Respiratory influenza-associated deaths** | | | | | | | | | |
| 2008/2009 | 0.29 | 0.65 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2009/2010 | 0.02 | 0.00 | 0.00 | 0.12 | 0.02 | 0.44 | 0.32 | 0.15 | 0.02 |
| 2010/2011 | 0.87 | 0.13 | 0.00 | 0.00 | 0.00 | 0.03 | 0.03 | 0.00 | 0.00 |
| 2011/2012 | 0.39 | 0.52 | 0.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2012/2013 | 0.35 | 0.67 | 0.05 | 0.01 | 0.16 | 0.33 | 0.47 | 0.27 | 0.12 |
| 2013/2014 | 0.12 | 0.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2014/2015 | 0.31 | 0.27 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2015/2016 | 0.67 | 0.53 | 0.00 | 0.00 | 0.11 | 0.36 | 0.40 | 0.20 | 0.02 |
| 2016/2017 | 0.94 | 0.33 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2017/2018 | 0.28 | 0.13 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Respiratory or cardiovascular influenza-associated deaths** | | | | | | | | | |
| 2008/2009 | 0.00 | 0.21 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2009/2010 | 0.01 | 0.00 | 0.00 | 0.36 | 0.82 | 0.97 | 0.93 | 0.84 | 0.12 |
| 2010/2011 | 0.35 | 0.97 | 0.00 | 0.00 | 0.00 | 0.05 | 0.02 | 0.01 | 0.00 |
| 2011/2012 | 0.94 | 0.99 | 0.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2012/2013 | 0.51 | 0.67 | 0.41 | 0.00 | 0.52 | 0.23 | 0.14 | 0.10 | 0.03 |
| 2013/2014 | 0.17 | 0.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2014/2015 | 0.28 | 0.20 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2015/2016 | 0.92 | 0.59 | 0.00 | 0.00 | 0.09 | 0.17 | 0.19 | 0.06 | 0.03 |
| 2016/2017 | 0.21 | 0.63 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2017/2018 | 0.20 | 0.05 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **All-cause influenza-associated deaths** | | | | | | | | | |
| 2008/2009 | 0.03 | 0.63 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2009/2010 | 0.67 | 0.03 | 0.00 | 0.13 | 0.43 | 0.64 | 0.72 | 0.33 | 0.11 |
| 2010/2011 | 0.14 | 0.64 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 2011/2012 | 0.08 | 0.69 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2012/2013 | 0.98 | 0.33 | 0.27 | 0.00 | 0.96 | 0.10 | 0.06 | 0.31 | 0.04 |
| 2013/2014 | 0.14 | 0.44 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 2014/2015 | 0.48 | 0.37 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2015/2016 | 0.99 | 0.72 | 0.00 | 0.00 | 0.00 | 0.66 | 0.60 | 0.05 | 0.00 |
| 2016/2017 | 0.11 | 0.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2017/2018 | 0.01 | 0.70 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |