

Supplementary file for “Respiratory syncytial virus-associated hospitalisation in adults with comorbidities in two European countries”

Model structure

We used a multiple linear regression model to estimate the number of respiratory tract infection (RTI) hospital admissions associated with RSV in adults with chronic medical conditions similar to previous studies (1-3). Overall, the model included a natural cubic spline function for weeks during the study period, the number of RSV-positive tests, and the number of influenza-positive tests. In Scotland, we considered an interaction term of influenza-positive tests and season (2010-11 season; other seasons) as there were a greater number of influenza-positive tests in the 2010-11 season compared to other seasons, which may reflect changes in testing practices over the study period:

$$E(Y_{t,a}) = \beta_{1,a}S_t + \beta_{2,a}RSV_{t-ta1} + \beta_{3,a}Flu_{t-ta2} * 2010/11season$$

t: week index (from 1 to the length of the study period)

a: Age group a

Y: weekly number of RTI hospital episodes (3-week moving average)

S: a natural cubic spline function of weeks.

RSV: weekly RSV positive tests

Flu: influenza-positive tests.

ta1: lags and/or leads in RSV

ta2: lags and/or leads in influenza.

In Denmark, the number of influenza A and influenza B positive tests was available and included in the model.

Supplementary file 2

Supplementary Table 1: The list of ICD-10 codes used to identify RTI diagnosis.

Diagnosis		ICD-10
Acute upper respiratory tract infection (URTI)		J00 J02.0 J02.8 J02.9 J03.0 J03.8 J03.9 J04.0 J04.1 J04.2 J05.0 J05.1 J06.0 J06.8 J06.9
Lower respiratory tract infection (LRTI)	Pneumonia and influenza	J09 J10.0 J10.1 J10.8 J11.0 J11.1 J11.8 J12.0 J12.1 J12.2 J12.3 J12.8 J12.9 J13 J14 J15.0 J15.1 J15.2 J15.3 J15.4 J15.5 J15.6 J15.7 J15.8 J15.9 J16.0 J16.8 J17.0 J17.1 J17.2 J17.3 J17.8 J18.0 J18.1 J18.2 J18.8 J18.9
	Bronchiolitis and bronchitis	J20.0 J20.1 J20.2 J20.3 J20.4 J20.5 J20.6 J20.7 J20.8 J20.9 J21.0 J21.1 J21.8 J21.9 J40
	Unspecified LRTI	J22

Supplementary Table 2: Chronic comorbidities and ICD-10 codes (any diagnostic fields).

Condition	ICD-10 codes
Chronic obstructive pulmonary disease	J40, J41.0, J41.1, J41.8, J42.0, J42.1, J42.4, J43.0, J43.1, J43.2, J43.8, J43.9, J44.0, J44.1, J44.8, J44.9, J47.0, J47.1, J47.9
Asthma	J45.0, J45.1, J45.2, J45.3, J45.4, J45.5, J45.8, J45.9, J46
Ischemic heart disease	I20.0, I20.1, I20.8, I20.9, I21.0, I21.1, I21.2, I21.3, I21.4, I21.6, I21.9, I22.0, I22.1, I22.2, I22.8, I22.9, I23.0, I23.1, I23.2, I23.3, I23.4, I23.5, I23.6, I23.7, I23.8, I24.0, I24.1, I24.8, I24.9, I25.0, I25.1, I25.2, I25.3, I25.4, I25.5, I25.6, I25.7, I25.8, I25.9
Stroke	I63.0, I63.1, I63.2, I63.3, I63.4, I63.5, I63.6, I63.7, I63.8, I63.9, I65.0, I65.1, I65.2, I65.3, I65.8, I65.9, I66.0, I66.1, I66.2, I66.3, I66.4, I66.8, I66.9, I67.2, I67.3, I67.5, I67.6, I69.3, G45.0, G45.1, G45.2, G45.3, G45.4, G45.8, G45.9, G46.0, G46.1, G46.2, G46.3, G46.4, G46.5, G46.6, G46.7, G46.8.
Diabetes	E10.0, E10.1, E10.3, E10.4, E10.5, E10.6, E10.7, E10.8, E10.9, E11.0, E11.1, E11.3, E11.4, E11.5, E11.6, E11.7, E11.8, E11.9, E12.0, E12.1, E12.3, E12.4, E12.5, E12.6, E12.7, E12.8, E12.9, E13.0, E13.1, E13.3, E13.4, E13.5, E13.6, E13.7, E13.8, E13.9, E14.0, E14.1, E14.3, E14.4, E14.5, E14.6, E14.7, E14.8, E14.9, P70.0, P70.1, P70.2, R73.0, R73.9
Chronic kidney disease	D63.1, E10.2, E11.2, E12.2, E13.2, E14.2, I12.0, I12.1, I12.2, I12.9, I13.0, I13.1, I13.2, I13.9, N02.0, N02.1, N02.2, N02.3, N02.4, N02.5, N02.6, N02.7, N02.8, N02.9, N03.0, N03.1, N03.2, N03.3, N03.4, N03.5, N03.6, N03.7, N03.8, N03.9, N04.0, N04.1, N04.2, N04.3, N04.4, N04.5, N04.6, N04.7, N04.8, N04.9, N05.0, N05.1, N05.2, N05.3, N05.4, N05.5, N05.6, N05.7, N05.8, N05.9, N06.0, N06.1, N06.2, N06.3, N06.4, N06.5, N06.6, N06.7, N06.8, N06.9, N07.0, N07.1, N07.2, N07.3, N07.4, N07.5, N07.6, N07.7, N07.8, N07.9, N08.0, N08.1, N08.2, N08.3, N08.4, N08.5, N08.8, N15.0, N18.0, N18.1, N18.2, N18.3, N18.4, N18.5, N18.6, N18.8, N18.9, Q61.0, Q61.1, Q61.2, Q61.3, Q61.4, Q61.5, Q61.8, Q61.9, Q62.0, Q62.1, Q62.2, Q62.3, Q62.4, Q62.5, Q62.6, Q62.7, Q62.8
Chronic liver disease	I85.0, I85.9, K70.0, K70.1, K70.2, K70.3, K70.4, K70.9, K71.0, K71.1, K71.3, K71.4, K71.5, K71.7, K71.8, K71.9, K72.0, K72.1, K72.9, K73.0, K73.1, K73.2, K73.8, K73.9, K74.0, K74.1, K74.2, K74.3, K74.4, K74.5, K74.6, K74.9, K75.8, K75.9, K76.0, K76.6, K76.7, K76.9

Supplementary Table 3: Average annual number of RTI hospital admissions associated with viruses in the overall population and with selected comorbidities, by age group.

	The average annual number of RTI hospital admissions attributable to RSV and influenza virus (95% CI)							
	Overall	COPD	Asthma	IHD	Stroke	Diabetes	CKD	CLD
Denmark								
45+y								
RSV	4975.9 (4225.8, 5785.9)	1876.2 (1612.6, 2178.4)	433.4 (368, 502)	1229.4 (1039, 1433)	328.2 (282, 378)	1032 (876, 1201)	165 (160, 218)	--
45-54y								
RSV	378.7 (322.2, 442.3)	65.4 (55.8, 77)	39.9 (33.5, 46.9)	76.8 (64.4, 89.4)	21 (18.0, 24.2)	78.5 (65.6, 91.0)	--	--
55-64y								
RSV	845.0 (712.6, 980.3)	265 (223.4, 308.2)	143.7 (122.8, 167.4)	177.1 (148, 204)	38.7 (32.8, 44.8)	71.7 (61.3, 83.3)	--	--
65-74y								
RSV	1214.9 (1029.2, 1402)	422.5 (360.1, 490.4)	233.3 (196, 271.4)	301.7 (255, 352)	57.3 (48.4, 66.4)	67.5 (57.3, 78.3)	--	--
75-84y								
RSV	1499.2 (1284.7, 1724.4)	660.2 (560.7, 768)	294.3 (248.9, 340)	479 (408, 555)	146.9 (125.4, 171.3)	83.4 (71.1, 97.1)	--	--
85+y								
RSV	919.1 (780.2, 1056.9)	258.9 (219.5, 299.8)	153.5 (131.8, 178.9)	203.2 (170, 235)	113.9 (96.0, 132.2)	38.7 (32.7, 45)	--	--
Scotland								
45+y								
Flu	2293.2 (137.4, 3332.2)	793.6 (392.7, 897.6)	481.1 (235.5, 512.1)	888.3 (371.2, 1073.0)	258.3 (115.7, 326.2)	579.2 (252.2, 721.9)	489.7 (195.2, 643.0)	77.1 (32.2, 80.4)
RSV	28851.6 (1873.6, 3360.7)	808.4 (526.1, 995.1)	458.8 (319.3, 582.0)	914.1 (563.9, 1122.4)	314.8 (192.6, 357.4)	588.0 (385.1, 701.1)	559.2 (358.8, 621.3)	63.9 (25.2, 93.2)
45-54y								
Flu	392.6 (28.7, 382.8)	56.2 (23.6, 59.7)	101.1 (63.6, 112.6)	35.4 (3.3, 36.2)	5.7 (-8, 9.9)	53.4 (30.7, 59.5)	16.4 (5.3, 24.1)	--
RSV	200.9 (104.5, 299.2)	26.0 (7.4, 39.3)	70.6 (33.1, 95.0)	32.3 (7.9, 49.0)	3.4 (-8, 7.7)	40.0 (17.9, 66.9)	15.4 (0.7, 25.9)	--
55-64y								
Flu	499.7	130.6	97.1	113.3	30.6	87.8	40.3	--

	The average annual number of RTI hospital admissions attributable to RSV and influenza virus (95% CI)							
	Overall	COPD	Asthma	IHD	Stroke	Diabetes	CKD	CLD
	(23.0, 472.4)	(61.9, 131.5)	(55.9, 95.3)	(79.1, 116.9)	(9.1, 35.2)	(23.8, 111.3)	(18.7, 50.2)	
RSV	236.9 (137.4, 336.4)	85.6 (57.0, 111.2)	65.5 (35.2, 83.2)	40.3 (14.2, 63.6)	11.7 (-4.3, 26.4)	56.1 (24.3, 74.1)	35.3 (22.1, 50.9)	--
65-74y								
Flu	637.7 (296.9, 648.1)	217.3 (106.9, 238.6)	115.8 (44.8, 131.1)	227.5 (131.7, 241.5)	53.0 (20.3, 77.9)	166.9 (82.3, 182.1)	92.3 (37.6,104. 9)	--
RSV	178.9 (165.7, 189.5)	174.6 (107.9, 237.7)	79.3 (35.1, 132.6)	145.0 (88.0, 253.0)	59.5 (32.1, 89.9)	119.0 (70.8, 167.7)	77.2 (48.3, 88.8)	--
75-84y								
Flu	800.3 (342.9, 1037.3)	247.9 (90.9, 346.9)	96.9 (37.2, 118.1)	314.4 (100.2, 449.4)	85.3 (43.6, 126.6)	174.2 (18.4, 274.2)	170.8 (40.5, 244.4)	--
RSV	933.7 (621.3, 1122.2)	314.3 (202.5, 425.6)	128.8 (74.3, 187.1)	354.9 (224.3, 447.3)	129.7 (66.4, 157.6)	214.6 (112.9, 258.9)	178.3 (106.3, 211.4)	--
85+y								
Flu	647.8 (228.9, 986.3)	148.3 (53.8, 238.9)	56.7 (11.8, 81.1)	251.8 (87.0, 386.6)	94.5 (39.1, 153.3)	97.2 (10.0, 156.3)	18.0 (70.9,262.4)	--
RSV	915.1 (577.7, 1068.8)	203.2 (113.3, 245.9)	105.7 (61.8, 117.4)	337.4 (199.8,433.1)	110.9 (56.4, 143.8)	151.3 (88.6, 190.4)	245.5 (151.3,283. 7)	--

Supplementary Table 4: Proportion of RTI hospital admissions that are associated with RSV and influenza virus (for Scotland), in the overall population and with selected underlying medical conditions, by age group and condition.

	The proportion of RTI admission attributable to RSV and influenza virus, % (95% CI)							
	Overall	COPD	Asthma	IHD	Stroke	Diabetes	CKD	CLD
Denmark								
45+y								
RSV	10.8 (9.2,12.6)	12.6 (10.8,14.6)	16.8 (14.2,19.4)	13.1 (11.1,15.3)	5.8 (4.5,7.3)	13.5 (11.5,15.7)	11.6 (11.2,15.3)	--
45-54y								
RSV	10.7 (9.1,12.5)	10.7 (9.1,12.6)	9.3 (7.8,11.0)	27.4 (23.0,31.9)	15.7 (13.5,18.1)	23.2 (19.4,26.9)	--	--
55-64y								
RSV	13.0 (10.9,15.0)	13.8 (11.6,16.0)	13.8 (11.8,16.0)	19.3 (16.1,22.2)	8.4 (7.1,9.7)	15.0 (12.8,17.4)	--	--
65-74y								
RSV	10.3 (8.8,11.9)	9.8 (8.4,11.4)	10.2 (8.6,11.9)	12.8 (10.8,14.9)	4.6 (3.9,5.4)	9.5 (8.1,11.0)	--	--
75-84y								
RSV	10.7 (9.2,12.3)	12.1 (10.3,14.1)	11.4 (9.7,13.2)	13.8 (11.7,16.0)	7.9 (6.7,9.2)	11.7 (9.9,13.6)	--	--
85+y								
RSV	9.0 (7.7,10.4)	9.9 (8.4,11.4)	11.7 (10.1,13.7)	5.7 (7.3,10.1)	8.0 (6.8,9.3)	11.2 (9.5,13.1)	--	--
Scotland								
45+y								
Influenza	6.6 (3.1,7.5)	6.0 (2.9,6.7)	7.6 (3.7,8.1)	5.7 (2.4,6.9)	6.1 (2.7,7.7)	6.7 (2.9,8.4)	6.1 (2.4,8.1)	4.4 (1.8,4.6)
RSV	6.4 (4.2,7.5)	6.1 (3.9,7.5)	7.3 (5.1,9.2)	5.9 (3.6,7.3)	7.4 (4.5, 8.4)	6.8 (4.5,8.1)	7.0 (4.5,7.8)	3.6 (1.4,5.0)
45-54y								
Influenza	9.0 (0.7,8.8)	7.8 (3.3,8.3)	10.5 (6.6,11.7)	6.4 (0.6,6.5)	4.6 (-.7,8.0)	9.9 (5.7,11.0)	7.9 (2.6,11.6)	--
RSV	4.6 (2.4,6.9)	3.6 (1.0,5.5)	7.3 (3.4,9.9)	5.8 (1.4,8.9)	2.8 (-.7,6.3)	7.4 (3.3,12.3)	7.4 (0.3,12.5)	--
55-64y								
Influenza	7.8 (0.4,7.4)	7.4 (3.5,7.5)	8.8 (5.0,8.6)	7.5 (5.2,7.7)	9.3 (2.8,10.7)	7.7 (2.1,9.7)	7.6 (3.5,9.5)	--
RSV	3.7 (2.2,5.3)	4.9 (3.2,6.3)	5.9 (3.2,7.5)	2.7 (0.9,4.2)	3.6 (-1.3,8.0)	4.9 (2.1,6.5)	6.7 (4.2,9.6)	--
65-74y								
Influenza	6.4 (3.0,6.5)	5.9 (2.9,6.5)	8.2 (3.2,9.3)	6.5 (3.8,6.9)	6.1 (2.3,9.0)	7.5 (3.7,8.2)	6.8 (2.8,7.8)	--
RSV	4.7 (3.2,6.1)	4.8 (2.9,6.5)	5.6 (2.5,9.4)	6.1 (5.7,6.5)	6.9 (3.7,10.4)	5.4 (3.2,7.5)	5.7 (3.6,6.6)	--
75-84y								
Influenza	5.9 (2.5,7.6)	5.2 (1.9,7.2)	5.4 (2.1,6.6)	5.5 (1.7,7.8)	5.3 (2.7,7.8)	5.5 (0.6,8.6)	5.6 (1.3,8.0)	--
RSV	6.8 (4.6, 8.2)	6.6 (4.2, 8.9)	7.2 (4.1, 10.4)	6.2 (3.9, 7.8)	8.0 (4.1, 9.7)	6.8 (3.6,8.2)	5.9 (3.5,7.0)	--
85+y								
Influenza	6.3 (2.2,9.7)	6.2 (2.2,10.0)	5.5 (1.2,7.9)	6.1 (2.1,9.3)	7.3 (3.0,11.8)	6.3 (0.6,10.1)	6.4 (2.5,9.2)	--
RSV	9.0 (5.7,10.5)	8.5 (4.7,10.3)	10.3 (6.0,11.5)	8.1 (4.8,10.4)	8.6 (4.3,11.1)	9.8 (5.7,12.3)	8.6 (5.3,9.9)	--

Supplementary Table 5: Average annual hospital admission rates of influenza-RTI per 1000 adults aged 45 years and older with selected underlying medical conditions, and rate ratios (RR) compared with the overall population in Scotland.

	Overall population	COPD		Asthma		IHD		Stroke		Diabetes		Chronic kidney disease		Chronic liver disease	
	Hospital admission rate (95% CI)	Hospital admission rate (95% CI)	RR (95% UR)	Hospital admission rate (95% CI)	RR (95% UR)	Hospital admission rate (95% CI)	RR (95% UR)	Hospital admission rate (95% CI)	RR (95% UR)	Hospital admission rate (95% CI)	RR (95% UR)	Hospital admission rate (95% CI)	RR (95% UR)	Hospital admission rate (95% CI)	RR (95% UR)
Scotland															
45+y															
Flu-RTI	1.2 (0.6,1.4)	7.0 (3.5,7.9)	5.8 (3.4,10.5)	4.0 (1.9,4.2)	3.3 (1.9,6.0)	4.4 (1.9,5.4)	3.7 (2.1,6.6)	2.9 (1.3,3.6)	2.4 (1.4,4.3)	2.3 (1.0,2.9)	1.9 (1.1,3.4)	2.9 (1.2,3.8)	2.4 (1.4,4.3)	2.9 (1.2,3.0)	2.4 (1.4,4.3)
45-54y															
Flu-RTI	0.5 (0.0,0.5)	3.4 (1.4,3.6)	6.7 (0.3,162)	2.3 (1.5,2.6)	4.5 (0.2,109.6)	2.0 (0.2,2.1)	3.9 (0.2,95.3)	0.7 (-0.1,1.2)	NA	1.3 (0.7,1.4)	2.5 (0.1,61.9)	2.0 (0.7,3.0)	3.9 (0.2,95.3)	2.2 (0.0,3.2)	NA
55-64y															
Flu-RTI	0.7 (0.0,0.7)	4.1 (2.0,4.2)	5.7 (0.2,175.9)	2.6 (1.5,2.6)	3.6 (0.2,111.6)	2.9 (2.0,3.0)	4.1 (0.2,124.4)	2.0 (0.6,2.3)	2.8 (0.1,85.8)	1.4 (0.4,1.8)	2.0 (0.1,60.1)	1.7 (0.8,2.1)	2.4 (0.1,72.9)	2.3 (-0.8, 2.9)	NA
65-74y															
Flu-RTI	1.2 (0.6,1.2)	6.1 (3.0,6.7)	5.1 (3.3,8.2)	4.5 (1.7,5.1)	3.7 (2.4,6.0)	3.9 (2.2,4.1)	3.2 (2.1,5.2)	2.2 (0.8,3.2)	1.8 (1.2,3.0)	2.3 (1.1,2.5)	1.9 (1.2,3.1)	1.7 (0.7,2.0)	1.4 (0.9,2.3)	4.3 (2.3, 5.7)	3.6 (2.3,5.8)
75-84y															
Flu-RTI	2.6 (1.1,3.3)	10.1 (3.7,14.2)	3.9 (1.9,8.3)	7.6 (2.9,9.2)	2.9 (1.4,6.2)	5.3 (1.7,7.6)	2.0 (1.0,4.3)	3.1 (1.6,4.6)	1.2 (0.6,2.5)	3.2 (0.3,5.0)	1.2 (0.6,2.6)	2.7 (0.6,3.8)	1.0 (0.5,2.2)	3.2 (-0.4, 4.6)	NA
85+y															
Flu-RTI	5.8 (2.1,8.8)	28.6 (10.4,46.1)	4.9 (2.0,13.2)	25.7 (5.3,36.8)	4.4 (1.8,11.9)	10.2 (3.5,15.7)	1.7 (0.7,4.7)	6.1 (2.5,9.9)	1.0 (0.4,2.8)	6.4 (0.7,10.3)	1.1 (0.4,3.0)	9.1 (3.6,13.1)	1.6 (0.6,4.2)	10.2 (-9.5, 14.4)	NA

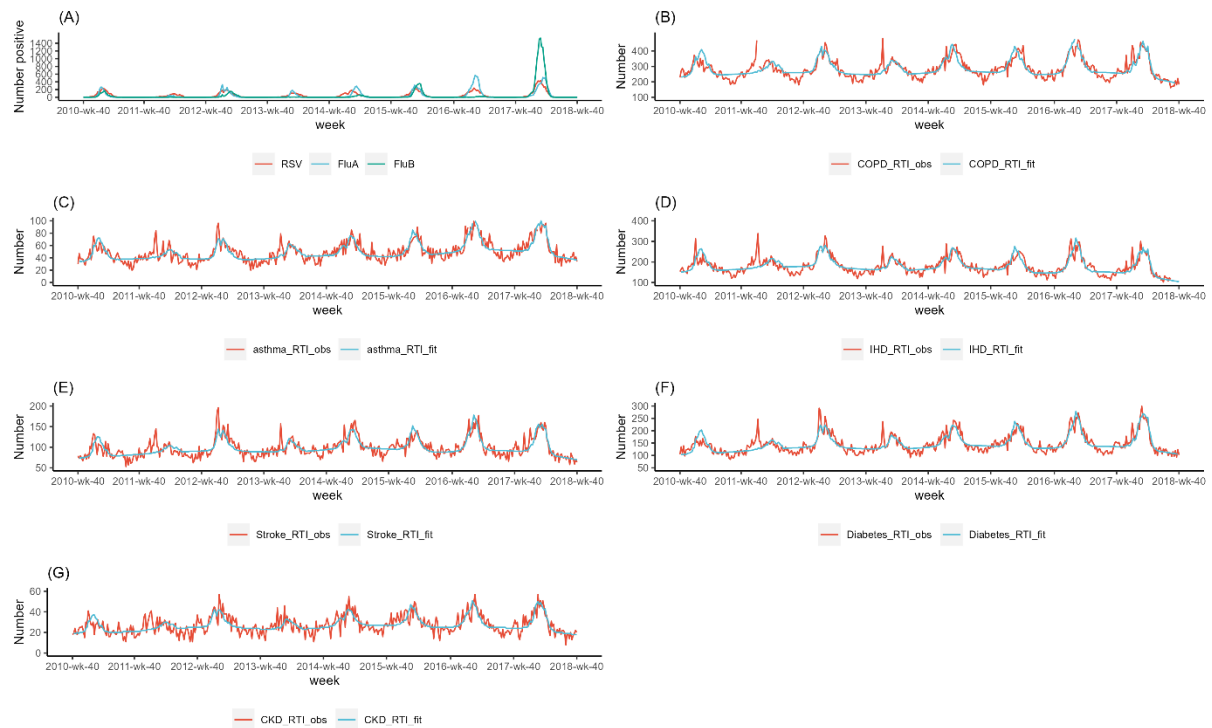
Supplementary Table 6: Age-specific rate ratios (RR) and 95% uncertain ranges (UR) of RSV-RTI hospitalisation compared with the overall population.

	COPD	Asthma	IHD	Stroke	Diabetes	CKD
Denmark						
45-54y	3.2 (2.5,4.2)	1.4 (1.1,1.9)	7.8 (6.0,10.3)	4.6 (3.5,6.1)	4.8 (3.7,6.3)	--
55-64y	3.3 (2.7,4.2)	2.9 (2.3,3.7)	3.7 (3.0,4.6)	1.7 (1.4,2.2)	1.0 (0.8,1.3)	--
65-74y	2.5 (2.1,3.1)	4.1 (3.4,5.1)	2.9 (2.4,3.6)	1.1 (0.9,1.4)	0.5 (0.4,0.6)	--
75-84y	2.2 (1.8,2.7)	5.7 (4.8,7.0)	2.7 (2.2,3.3)	1.3 (1.1-1.6)	0.4 (0.3,0.5)	--
85y+	2.2 (1.8,2.8)	6.3 (5.1,7.7)	1.8 (1.5,2.3)	1.2 (1.0,1.5)	0.3 (0.3,0.4)	--
Scotland						
45-54y	5.3 (2.2,13.9)	5.3 (2.2,13.9)	6.0 (2.5,15.6)	NA	3.3 (1.4,8.7)	6.3 (2.6,16.4)
55-64y	6.7 (3.7,12.7)	4.5 (2.5,8.5)	2.5 (1.4,4.7)	NA	2.2 (1.2,4.2)	3.7 (2.1,7.0)
65-74y	5.4 (3.5,8.8)	3.4 (2.2,5.6)	2.8 (1.8,4.5)	2.8 (1.8,4.5)	1.8 (1.1,2.9)	1.6 (1.0,2.5)
75-84y	4.3 (2.9,6.4)	3.3 (2.3,5.0)	2.0 (1.4,3.0)	1.6 (1.1,2.3)	1.3 (0.9,1.9)	0.9 (0.6,1.4)
85y+	4.8 (3.2,7.3)	5.8 (3.9,8.9)	1.7 (1.1,2.5)	0.9 (0.6,1.3)	1.2 (0.8,1.8)	1.5 (1.0,2.3)

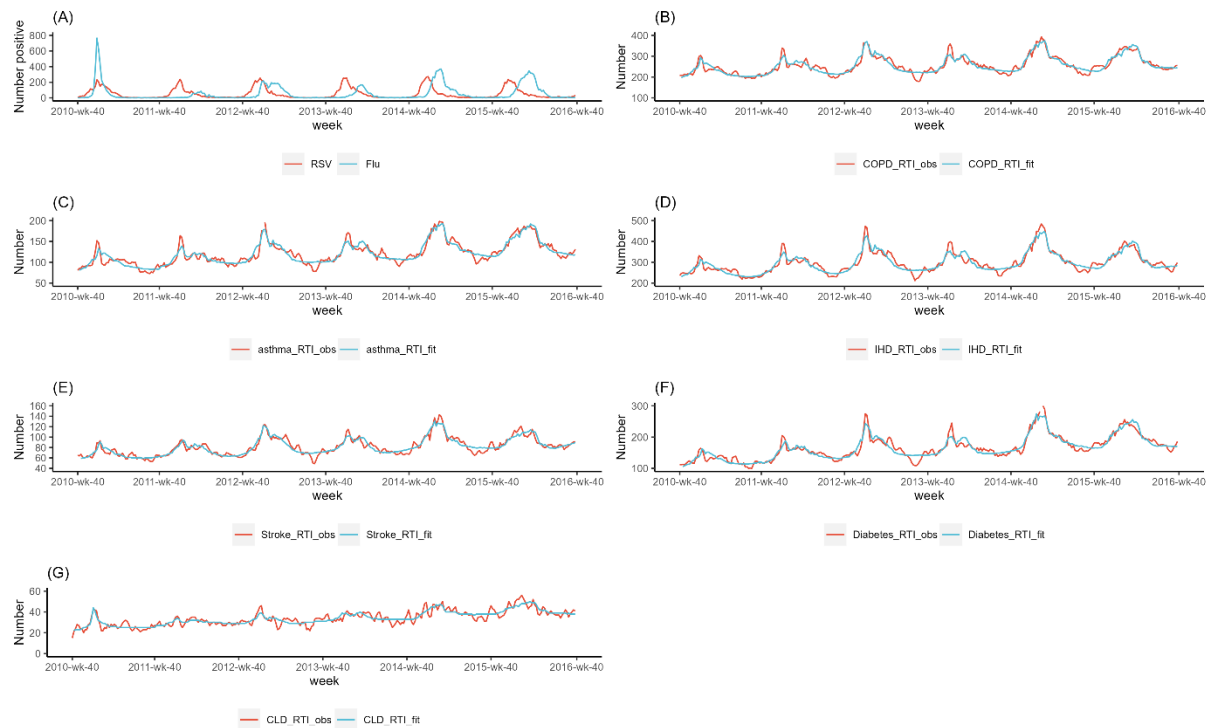
Supplementary Table 7: Sensitivity analyses for annual hospital admission rate of RSV-RTI per 1000 adults aged ≥45 years with selected comorbidities.

			≥45 years						
			Comorbidity						
Denmark	Sensitivity description	Virus	COPD	Asthma	IHD	Stroke	Diabetes	CKD	CLD
	Main model	RSV	9.0 (7.7,10.4)	3.1 (2.6,3.6)	7.6 (6.4,8.8)	3.7 (3.2,4.3)	4.7 (4.0,5.5)	19.4 (18.9,25.7)	--
		AIC	4312.8	3068.1	3948.7	3413.1	3734.0	2717.7	--
	Assuming no lags for RSV and Flu	RSV	6.5 (5.5,7.6)	2.1 (1.8,2.4)	5.0 (4.3,5.8)	3.9 (3.3,4.4)	2.9 (2.4,3.3)	14.8 (12.5,17.1)	--
		AIC	4373.5	3781.1	3984.1	3425.8	3083.8	2738.7	--
	Use Poisson regression model	RSV	7.5 (6.3,8.8)	2.7 (2.3,3.2)	6.5 (5.5,7.5)	3.7 (3.1,4.3)	4.4 (3.7,5.2)	21.1 (17.6,25.0)	--
		AIC	5781.8	3167.2	4469.3	3485.8	4071.7	2739.4	--
Scotland	Main model	Influenza	7.1 (4.6,8.8)	3.8 (2.6,4.8)	4.6 (2.8,5.6)	3.5 (2.1,3.9)	2.4 (1.5,2.8)	3.3(2.1,3.7)	2.4 (0.9,3.5)
		RSV	7.0 (3.5,7.9)	4.0 (1.9,4.2)	4.4 (1.9,5.4)	2.9 (1.3,3.6)	2.3 (1.0,2.9)	2.9 (1.2,3.8)	2.9 (1.2,3.0)
		AIC	2692.9	2365.0	2776.7	2094.1	2513.0	2462.0	1679.6
	Assuming no lags for RSV and Flu	Influenza	5.0 (4.6,5.2)	2.7 (2.5,2.9)	3.3 (3.1,3.5)	2.6 (2.4,2.7)	1.5 (1.4,1.6)	2.3 (2.2,2.5)	1.8 (1.7,1.9)
		RSV	6.4 (3.7,9.0)	3.5 (2.0,4.9)	4.0 (2.3,5.6)	2.6 (1.5,3.7)	2.1 (1.2,2.9)	2.6 (1.5,3.6)	2.9 (1.7,4.0)
		AIC	2915.9	2551.1	3011.1	2286.8	2764.6	2703.8	1724.33
	Add rhinovirus to model	Influenza	6.0 (5.5,6.4)	3.2 (2.9,3.4)	3.8 (3.5,4.1)	3.2 (2.9,3.4)	2.0 (1.9,2.2)	2.8 (2.6,3.0)	1.9 (1.7,2.0)
		RSV	7.2 (3.6,10.9)	4.0 (1.9,6.2)	4.6 (2.2,7.0)	2.9 (1.4,4.5)	2.4 (1.1,3.7)	3.0 (1.3,4.6)	2.9 (1.7,4.1)
		AIC	2660.9	2330.0	2742.4	2071.4	2487.8	2432.0	1669.8
	Use Poisson regression model	Influenza	7.0 (6.2,7.7)	3.7 (3.2,4.3)	4.4 (3.9,4.9)	3.3 (2.9,3.8)	2.3 (1.9,2.7)	3.2 (2.6,3.7)	2.4 (2.1,8.0)
		RSV	6.7 (3.2,10.4)	3.8 (1.7,6.0)	4.3 (1.9,6.7)	2.7 (1.3,4.3)	2.2 (0.9,3.5)	2.7 (1.1,4.5)	2.7 (1.5,4.0)
		AIC	2702.8	2370.8	2788.3	2120.8	2504.3	2452.6	1790.4

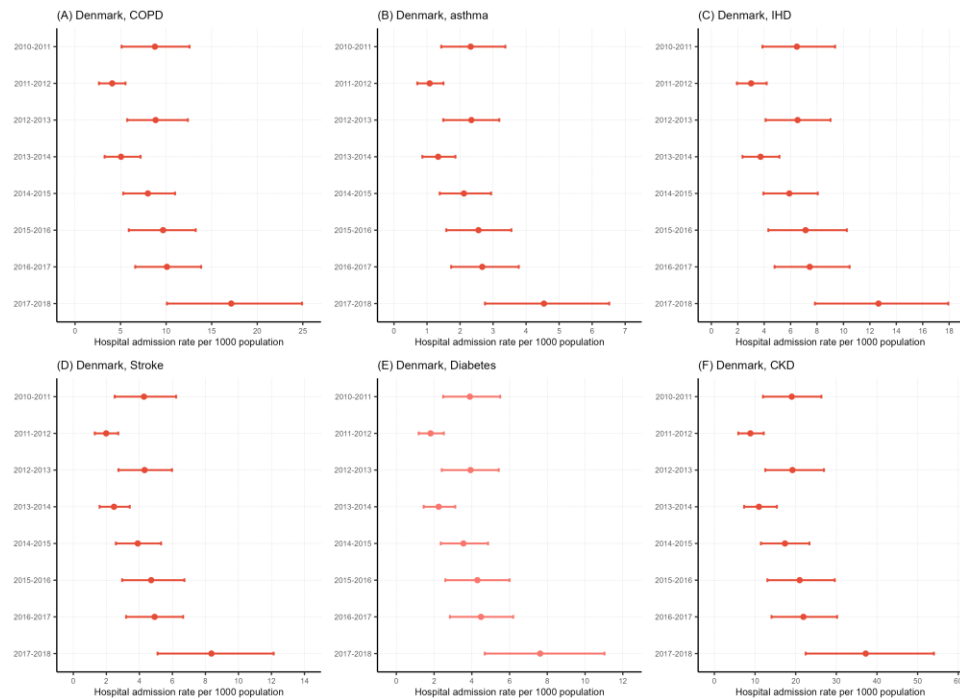
*COPD-Chronic obstructive pulmonary disease; IHD-Ischemic heart disease; CKD-Chronic kidney disease; CLD-Chronic liver disease



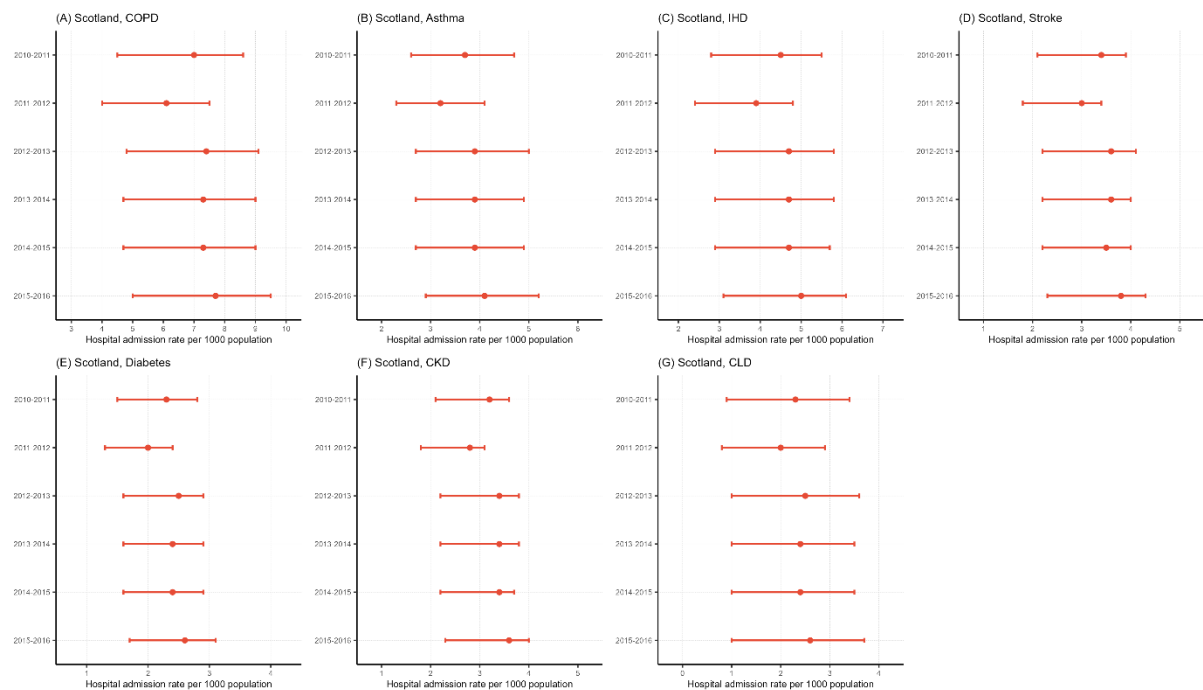
Supplementary Figure 1. Weekly time series for respiratory syncytial virus (RSV) and influenza virus (Panel A), and weekly time series of observed and fitted respiratory tract infection (RTI) hospitalisations in Danish adults aged 45 years and older with comorbidities, i.e., COPD (B), asthma (C), ischemic heart disease (D), stroke (E) diabetes (F), and chronic kidney disease (G).



Supplementary Figure 2. Weekly time series for respiratory syncytial virus (RSV) and influenza virus (panel A), and weekly time series of observed (3-week moving average) and fitted respiratory tract infection (RTI) hospitalisations in Scottish adults aged 45 years and older with comorbidities, i.e., COPD (B), asthma (C), ischemic heart disease (D), stroke (E), diabetes (F), and chronic liver disease (G).



Supplementary Figure 3. Annual hospitalisation rates of RSV-RTI per 1000 persons in Danish adults aged 45 years and older with underlying medical conditions, by condition and season (2010-2018), i.e., COPD (A), asthma (B), IHD (C), stroke (D) diabetes (E), and chronic kidney disease (F).



Supplementary Figure 4. Annual hospitalisation rates of RSV-RTI per 1000 persons in Scottish adults aged 45 years and older with underlying medical conditions, by condition and season (2010-2016), i.e., COPD (A), asthma (B), IHD (C), stroke (D), diabetes (E), chronic kidney disease (F) and chronic liver disease (G).

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1. Taylor S, Taylor RJ, Lustig RL, Schuck-Paim C, Haguet F, Webb DJ, et al. Modelling estimates of the burden of respiratory syncytial virus infection in children in the UK. *BMJ Open*. 2016;6(6):e009337.
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