

Supplementary tables:

Supplementary Table 1: Diagnostic codes used to identify community-acquired pneumonia and acute otitis media in Ontario and British Columbia

Study Outcome and Diagnosis	ICD-9/OHIP fee codes for outpatient physician consultation in primary care settings	ICD-10 codes for hospitalization or emergency department visit
Community-Acquired Pneumonia (CAP)		
Pneumococcal pneumonia	481	J13
Bronchopneumonia and lobar pneumonia, unspecified	482	J18.0, J18.1
Other pneumonia	483, 484, 485, 486	J14, J15, J16, J17, J10.0, J11.0
Viral pneumonia	480	J12
Empyema	510	J86.9
Abscess of lung with pneumonia	513	J85.1
Acute Otitis Media (AOM)		
Acute suppurative otitis media	382	H66.0
Acute serous otitis media	381	H65.0
Other acute nonsuppurative otitis media	381	H65.1

OHIP, Ontario Health Insurance Plan

Supplementary Table 2: Distribution of study outcomes across different databases in Ontario and British Columbia, 2002–2018

Database, healthcare setting*	Community-acquired pneumonia, n (%)	Bacterial community-acquired pneumonia, n (%)	Acute otitis media, n (%)	Acute suppurative otitis media, n (%)
Ontario				
DAD, hospitalization	59,023 (1.6)	69,476 (40.3)	784 (0.0)	324 (0.0)
NACRS, emergency department visit	31,006 (0.9)	90,806 (52.7)	14,255 (0.2)	9,312 (0.3)
OHIP, outpatient physician consultation in primary care	3,277,263 (90.9)	265 (0.2)	7,981,536 (99.4)	3,304,410 (99.5)
>1 database	239,832 (6.6)	11,743 (6.8)	30,396 (0.4)	5,624 (0.2)
Total	3,607,124	172,290	8,026,971	3,319,670
British Columbia				
DAD, hospitalization	20,737 (2.1)	19,160 (6.0)	426 (0.0)	93 (0.0)
MSP, outpatient physician consultation in primary care	907,272 (93.5)	288,612 (90.8)	2,021,739 (100.0)	1,442,216 (100.0)
>1 database	42,446 (4.4)	10,141 (3.2)	706 (0.0)	102 (0)
Total	970,455	317,913	2,022,871	1,442,411

*Outcome counts in different dataset rows are mutually exclusive.

Abbreviations: DAD, Discharge Abstract Database; NACRS, National Ambulatory Care Reporting System; OHIP, Ontario Health Insurance Plan; MSP, Medical Services Plan.

Supplementary Table 3: Age and sex distribution of estimated bacterial community-acquired pneumonia, pneumococcal pneumonia and acute suppurative otitis media in Ontario and British Columbia, 2005–2018

Characteristics	Bacterial community-acquired pneumonia, n (%)	Pneumococcal pneumonia		Acute suppurative otitis media, n (%)
		Hospitalized, n (%)	Nonhospitalized, n (%)	
Ontario				
Total cases, N	172,290	7,293	521	3,319,670
Sex				
Female	83,412 (48)	3,101 (42.5)	226 (43.4)	1,669,573 (50)
Male	88,878 (52)	4,192 (57.5)	295 (56.6)	1,650,097 (50)
Age group				
0–4 years	22,084 (13)	338 (4.6)	44 (8.4)	1,348,564 (41)
5–17 years	10,416 (6)	221 (3.0)	36 (6.9)	893,443 (27)
18–39 years	15,374 (9)	654 (9.0)	106 (20.3)	462,689 (14)
40–64 years	39,091 (23)	2,877 (39.4)	197 (37.8)	451,855 (14)
65–74 years	25,229 (15)	1,439 (19.7)	56 (10.7)	91,600 (3)
75–84 years	32,762 (19)	1,154 (15.8)	54 (10.4)	53,304 (2)
≥85 years	27,334 (16)	610 (8.4)	28 (5.4)	18,215 (1)
British Columbia				
Total cases, N	317,913	3,730	31,557	1,442,411
Sex				
Female	159,001 (50)	1,511 (40.5)	16,528 (52.4)	739,143 (51)
Male	158,912 (50)	2,219 (59.5)	15,029 (47.6)	703,268 (49)
Age group				
0–4 years	21,144 (7)	135 (3.6)	2,082 (6.6)	399,511 (28)
5–17 years	22,166 (7)	132 (3.5)	2,480 (7.9)	460,082 (32)
18–39 years	32,924 (10)	469 (12.6)	3,746 (11.9)	243,938 (17)
40–64 years	84,368 (27)	1,518 (40.7)	9,151 (29.0)	242,860 (17)
65–74 years	50,595 (16)	650 (17.4)	5,024 (15.9)	53,224 (4)
75–84 years	56,143 (18)	542 (14.5)	4,972 (15.8)	30,627 (2)
≥85 years	50,573 (16)	284 (7.6)	4,102 (13.0)	12,169 (1)

Supplementary Table 4: Annual incidence of community-acquired pneumonia and acute otitis media in Ontario and British Columbia, 2005–2018

Year	Incidence per 100,000 population (95% Confidence Interval)							
	Ontario				British Columbia			
	Community-acquired pneumonia		Bacterial community-acquired pneumonia		Community-acquired pneumonia		Bacterial community-acquired pneumonia	
	Crude rate	Adjusted rate	Crude rate	Adjusted rate	Crude rate	Adjusted rate	Crude rate	Adjusted rate
2005	2041.1 (2033.2, 2049.0)	3077.4 (2872.5, 3296.8)	118.2 (116.3, 120.1)	178.5 (167.5, 190.3)	1507.8 (1496.1, 1519.6)	2214.1 (2048.1, 2393.5)	307.2 (302.0, 312.6)	441.6 (386.4, 504.6)
2006	1939.6 (1931.9, 1947.3)	2903.4 (2706.3, 3114.7)	94.1 (92.4, 95.8)	140.4 (130.8, 150.7)	1391.5 (1380.4, 1402.8)	2027.0 (1869.9, 2197.2)	296.3 (291.2, 301.6)	421.5 (368.3, 482.5)
2007	1882.6 (1875.1, 1890.1)	2801.7 (2609.6, 3008.0)	81.7 (80.2, 83.3)	120.8 (111.9, 130.3)	1421.5 (1410.3, 1432.8)	2058.4 (1901.4, 2228.4)	314.8 (309.5, 320.1)	444.5 (390.2, 506.3)
2008	1832.3 (1824.9, 1839.7)	2710.3 (2522.9, 2911.7)	84.6 (83, 86.2)	123.7 (114.9, 133.3)	1466.5 (1455.2, 1478.0)	2114.2 (1956.3, 2284.8)	338.0 (332.6, 343.5)	474.7 (418.9, 537.9)
2009	1906.6 (1899.1, 1914.1)	2804.4 (2614.9, 3007.6)	88.4 (86.8, 90.1)	128.2 (119.3, 137.8)	1403.4 (1392.4, 1414.5)	2013.4 (1860.9, 2178.4)	337.2 (331.8, 342.7)	470.6 (415.6, 532.8)
2010	1780.1 (1772.9, 1787.3)	2603.6 (2422.7, 2798.0)	77.9 (76.4, 79.4)	111.9 (103.6, 120.8)	1376.0 (1365.2, 1387.0)	1963.5 (1814.3, 2125.1)	360.9 (355.4, 366.6)	500.5 (444.2, 563.9)
2011	1952.6 (1945.1, 1960.2)	2839.9 (2652.0, 3041.0)	79.6 (78.1, 81.2)	113.3 (105.1, 122.2)	1525.9 (1514.5, 1537.3)	2161.7 (2005.9, 2329.5)	431.2 (425.1, 437.3)	592.6 (531.5, 660.7)
2012	1939.3 (1931.9, 1946.8)	2802.8 (2617.6, 3001.0)	80.8 (79.3, 82.3)	113.8 (105.6, 122.6)	1458.4 (1447.3, 1469.5)	2055.2 (1905.0, 2217.4)	497.2 (490.8, 503.7)	678.8 (613.8, 750.7)
2013	1831.2 (1824.0, 1838.4)	2631.1 (2453.2, 2821.9)	72.6 (71.2, 74.1)	101.2 (93.6, 109.4)	1589.7 (1578.3, 1601.2)	2227.1 (2071.9, 2394.0)	577.2 (570.3, 584.1)	782.0 (712.7, 858.1)
2014	1964.4 (1956.9, 1971.8)	2807.2 (2624.4, 3002.7)	87.8 (86.3, 89.4)	121.3 (113, 130.2)	1566.9 (1555.6, 1578.3)	2184.5 (2032.4, 2348.0)	603.9 (597.0, 611.0)	813.1 (743.1, 889.7)
2015	1938.0 (1930.7, 1945.4)	2754.5 (2574.6, 2947.0)	101.1 (99.4, 102.8)	138.4 (129.6, 147.8)	1599.6 (1588.3, 1611.0)	2217.0 (2065.2, 2379.9)	632.9 (625.8, 640.1)	846.0 (775.2, 923.1)
2016	1988.2 (1980.7, 1995.6)	2812.1 (2631.7, 3004.8)	105.7 (104, 107.4)	143.4 (134.5, 152.9)	1646.1 (1634.7, 1657.5)	2268.5 (2116.6, 2431.4)	679.2 (671.9, 686.6)	901.8 (829.4, 980.4)
2017	2014.5 (2007.0, 2021.9)	2839.8 (2660, 3031.7)	106.3 (104.6, 108)	143.3 (134.5, 152.7)	1653.8 (1642.5, 1665.2)	2266.0 (2115.5, 2427.1)	718.0 (710.5, 725.5)	946.4 (872.9, 1026.1)
2018	2020.5 (2013.2, 2027.9)	2842.6 (2664.4, 3032.7)	111.0 (109.3, 112.7)	148.9 (140.0, 158.4)	1595.8 (1584.7, 1606.9)	2175.8 (2029.9, 2332.2)	749.3 (741.7, 756.9)	981.3 (907.2, 1061.5)
Mean	1931.8 (1929.8, 1933.8)	2800.5 (2748.4, 2853.6)	92.3 (91.8, 92.7)	130.5 (128.0, 133.0)	1518.6 (1515.6, 1521.6)	2143.5 (2100.3, 2187.5)	497.5 (495.7, 499.2)	680.4 (661.7, 699.6)
	Pneumococcal pneumonia				Pneumococcal pneumonia			
	Hospitalized		Nonhospitalized		Hospitalized		Nonhospitalized	

	Crude rate	Adjusted rate	Crude rate	Adjusted rate	Crude rate	Adjusted rate	Crude rate	Adjusted rate
2005	5.8 (5.3,6.3)	5.7 (5.2,6.2)	0.2 (0.1,0.3)	0.3 (0.2,0.4)	7.1 (6.3, 7.9)	8.0 (6.9, 9.2)	45.1 (43.1, 47.2)	64.5 (58.3, 71.4)
2006	4.8 (4.4,5.2)	4.7 (4.3,5.2)	0.4 (0.3,0.5)	0.4 (0.3,0.6)	6.5 (5.8, 7.3)	7.3 (6.2, 8.5)	37.1 (35.3, 39.0)	52.6 (47, 58.8)
2007	4.6 (4.2,5.0)	4.5 (4.1,5.0)	0.5 (0.3,0.6)	0.5 (0.4,0.7)	7.3 (6.5, 8.1)	8.1 (7.0, 9.4)	46.2 (44.2, 48.3)	65.1 (58.9, 71.9)
2008	4.8 (4.4,5.3)	4.7 (4.2,5.1)	0.3 (0.2,0.4)	0.4 (0.3,0.5)	6.5 (5.8, 7.3)	7.2 (6.2, 8.4)	50.5 (48.4, 52.7)	70.8 (64.4, 77.8)
2009	4.8 (4.4,5.2)	4.8 (4.4,5.3)	0.4 (0.3,0.5)	0.5 (0.4,0.6)	5.5 (4.9, 6.3)	6.1 (5.2, 7.2)	48.8 (46.8, 50.9)	68.0 (61.9, 74.8)
2010	4.1 (3.7,4.5)	4.0 (3.6,4.4)	0.2 (0.1,0.3)	0.3 (0.2,0.4)	5.1 (4.5, 5.8)	5.6 (4.7, 6.6)	49.1 (47.1, 51.2)	68.0 (61.9, 74.8)
2011	4.1 (3.8,4.5)	4.0 (3.6,4.4)	0.3 (0.2,0.4)	0.3 (0.2,0.4)	5.3 (4.6, 6.0)	5.7 (4.9, 6.8)	53.2 (51.2, 55.4)	73.2 (66.9, 80.2)
2012	4.2 (3.8,4.6)	4.0 (3.6,4.4)	0.3 (0.2,0.4)	0.3 (0.2,0.4)	5.5 (4.9, 6.2)	6.0 (5.1, 7.0)	48.8 (46.8, 50.9)	66.7 (60.7, 73.2)
2013	3.9 (3.6,4.3)	3.6 (3.3,4.0)	0.3 (0.2,0.4)	0.3 (0.2,0.5)	5.4 (4.8, 6.1)	5.8 (5.0, 6.8)	55.3 (53.2, 57.5)	75.1 (68.8, 81.9)
2014	3.5 (3.1,3.8)	3.3 (2.9,3.6)	0.3 (0.2,0.4)	0.4 (0.3,0.5)	5.1 (4.5, 5.7)	5.4 (4.6, 6.4)	48.0 (46.1, 50.0)	64.8 (59.1, 71.1)
2015	4.7 (4.3,5.2)	4.3 (3.9,4.7)	0.3 (0.2,0.5)	0.4 (0.3,0.5)	5.2 (4.5, 5.8)	5.5 (4.6, 6.4)	48.2 (46.3, 50.2)	64.7 (59.0, 70.9)
2016	4.6 (4.3,5.1)	4.2 (3.9,4.6)	0.3 (0.2,0.4)	0.3 (0.2,0.4)	5.7 (5.0, 6.4)	6.0 (5.1, 7.0)	48.5 (46.6, 50.5)	64.7 (59.1, 70.9)
2017	4.6 (4.2,5.0)	4.2 (3.8,4.6)	0.3 (0.2,0.4)	0.3 (0.2,0.4)	5.9 (5.3, 6.6)	6.2 (5.3, 7.2)	49.1 (47.2, 51.1)	65.1 (59.5, 71.2)
2018	5.1 (4.7,5.5)	4.6 (4.3,5.1)	0.3 (0.2,0.4)	0.3 (0.2,0.4)	6.1 (5.4, 6.8)	6.3 (5.5, 7.3)	60.8 (58.7, 63.0)	80.1 (74.0, 86.8)
Mean	4.5 (4.4,4.6)	4.3 (4.2,4.4)	0.3 (0.3,0.3)	0.3 (0.3,0.4)	5.8 (5.7, 6.0)	6.3 (6.0, 6.6)	49.4 (48.8, 49.9)	67.6 (65.9, 69.3)
	Acute otitis media		Acute suppurative otitis media		Acute otitis media		Acute suppurative otitis media	
	Crude rate	Adjusted rate	Crude rate	Adjusted rate	Crude rate	Adjusted rate	Crude rate	Adjusted rate
2005	5308.8 (5296.0, 5321.6)	4192.4 (3874.4, 4536.5)	2364.7 (2356.2, 2373.2)	1604.0 (1495.3, 1720.6)	4118.3 (4098.9, 4137.7)	3683.6 (3367.9, 4029.0)	3141.9 (3125.0, 3158.9)	2501.9 (2309.7, 2710.2)
2006	5081.1 (5068.7, 5093.5)	4027.6 (3718.0, 4363.0)	2269.4 (2261.1, 2277.7)	1545.7 (1439.8, 1659.5)	3820.0 (3801.4, 3838.6)	3432.8 (3130.0, 3764.8)	2872.6 (2856.5, 2888.8)	2300.2 (2117.3, 2498.9)
2007	4521 (4509.4, 4532.7)	3600.6 (3311.0, 3915.6)	1986.2 (1978.5, 1993.9)	1360.3 (1262.3, 1465.8)	3714.3 (3696.1, 3732.6)	3353.6 (3055.7, 3680.5)	2773.3 (2757.6, 2789.1)	2232.9 (2053.5, 2427.8)
2008	4455.6 (4444.1, 4467.1)	3559.8 (3272.9, 3871.8)	1917.6 (1910.1, 1925.2)	1317.8 (1221.9, 1421.2)	3575.9 (3558.1, 3593.7)	3242.1 (2951.0, 3561.9)	2661.0 (2645.7, 2676.3)	2152.6 (1977.6, 2343.0)
2009	4376 (4364.7, 4387.4)	3509.6 (3225.8, 3818.4)	1842.7 (1835.4, 1850.1)	1271.8 (1178.2, 1372.9)	3257.0 (3240.2, 3273.9)	2963.6 (2687.9, 3267.6)	2397.0 (2382.6, 2411.5)	1947.0 (1782.4, 2126.9)
2010	4333.1 (4321.8, 4344.3)	3486.4 (3204.6, 3793.0)	1783.8 (1776.6, 1791)	1235.5 (1143.7, 1334.6)	3294.1 (3277.3, 3311.0)	3006.2 (2729.5, 3310.9)	2391.8 (2377.5, 2406.2)	1949.5 (1785.4, 2128.6)
2011	4533.1 (4521.6, 4544.5)	3659.3 (3370.3, 3973.0)	1858.5 (1851.1, 1865.8)	1291.9 (1197.9, 1393.2)	3419.3 (3402.2, 3436.4)	3130.6 (2848.4, 3440.8)	2481.1 (2466.6, 2495.7)	2030.3 (1862.8, 2212.9)
2012	4225.0 (4214.0, 4236.0)	3429.5 (3151.8, 3731.7)	1691.3 (1684.4, 1698.3)	1183.3 (1094.2, 1279.6)	2980.0 (2964.2, 2995.9)	2749.2 (2487.3, 3038.7)	2109.9 (2096.6, 2123.3)	1742.4 (1589, 1910.6)
2013	4070.3 (4059.5, 4081.0)	3324.7 (3052.3, 3621.4)	1606.5 (1599.7, 1613.2)	1132.3 (1045.7, 1226.2)	3076.4 (3060.5, 3092.4)	2858.6 (2591.8, 3152.7)	2168.1 (2154.7, 2181.5)	1806.1 (1649.9, 1977.0)
2014	4041.1 (4030.4, 4051.8)	3319.2 (3047.4, 3615.2)	1615.3 (1608.6, 1622.1)	1146.2 (1059.0, 1240.6)	2824.4 (2809.2, 2839.6)	2640.4 (2386.3, 2921.6)	1957.5 (1944.9, 1970.2)	1642.8 (1495.3, 1804.9)

2015	3825.7 (3815.4, 3836.1)	3155 (2891.4, 3442.6)	1487.9 (1481.5, 1494.4)	1061.1 (977.8, 1151.5)	2736.5 (2721.7, 2751.4)	2564.9 (2316.2, 2840.3)	1868.1 (1855.9, 1880.4)	1573.0 (1429.8, 1730.6)
2016	3952.1 (3941.7, 3962.6)	3268.2 (3000.4, 3559.9)	1560.6 (1554.1, 1567.2)	1116.6 (1031.2, 1209.2)	2739.0 (2724.4, 2753.8)	2571.0 (2323.7, 2844.5)	1855.5 (1843.4, 1867.6)	1565.2 (1423.4, 1721.2)
2017	3880.8 (3870.6, 3891.1)	3230.6 (2965.5, 3519.4)	1543.9 (1537.5, 1550.4)	1113.6 (1028.5, 1205.7)	2572.5 (2558.3, 2586.7)	2423.5 (2185.3, 2687.8)	1680.7 (1669.3, 1692.2)	1424.2 (1290.2, 1572.3)
2018	3794.8 (3784.7, 3804.9)	3177.6 (2916.4, 3462.3)	1494 (1487.6, 1500.3)	1085 (1001.6, 1175.4)	2530.3 (2516.4, 2544.3)	2398.1 (2162.3, 2659.7)	1574.9 (1563.9, 1585.9)	1344.2 (1214.8, 1487.3)
Mean	4298.8 (4295.8, 4301.8)	3490.4 (3368.5, 3616.7)	1777.8 (1775.9, 1779.7)	1244.9 (1201.3, 1290.1)	3164.7 (3160.4, 3169.1)	2916.4 (2819.0, 3017.2)	2256.6 (2252.9, 2260.3)	1861.6 (1800.6, 1924.8)

Supplementary Table 5: Estimated incidence of bacterial community-acquired pneumonia, pneumococcal pneumonia and acute suppurative otitis media according to age-group before and after implementation of 13-valent pneumococcal conjugate vaccine (PCV13) program in Ontario, 2005–2018

Age group	Incidence per 100,000 population (95% Confidence interval)	
	Study estimate	
	Pre-PCV13 period	PCV13 period
Bacterial community-acquired pneumonia		
0–4 years	238.7 (205.8, 276.9)	211.7 (189.9, 236.0)
5–17 years	38.7 (31.3, 47.9)	35.1 (29.9, 41.2)
18–39 years	28.0 (23.3, 33.7)	27.3 (24.0, 31.0)
40–64 years	59.1 (52.5, 66.4)	60.7 (56.1, 65.7)
65–74 years	175.8 (151.1, 204.5)	163.4 (148.5, 179.9)
75–84 years	379.1 (334, 430.3)	356.6 (327.0, 388.9)
≥85 years	762.8 (655.4, 887.8)	775.7 (709.0, 848.8)
Total	90.8 (85.9, 96.0)	93.3 (89.8, 96.8)
Pneumococcal pneumonia, hospitalized		
0–4 years	4.1 (3.3, 5.1)	3.0 (2.4, 3.6)
5–17 years	0.8 (0.6, 1.1)	0.7 (0.6, 0.9)
18–39 years	1.4 (1.2, 1.6)	1.0 (0.9, 1.2)
40–64 years	4.5 (4.2, 4.9)	4.3 (4.1, 4.6)
65–74 years	10.8 (9.6, 12.1)	8.9 (8.1, 9.8)
75–84 years	14.6 (12.9, 16.5)	11.8 (10.6, 13.1)
≥85 years	20.0 (16.8, 23.9)	15.7 (13.6, 18.1)
Total	4.1 (3.9, 4.3)	3.8 (3.6, 3.9)
Pneumococcal pneumonia, nonhospitalized		
0–4 years	0.5 (0.3, 0.8)	0.4 (0.3, 0.6)
5–17 years	0.2 (0.1, 0.3)	0.1 (0.1, 0.1)
18–39 years	0.2 (0.2, 0.3)	0.2 (0.1, 0.2)
40–64 years	0.3 (0.3, 0.4)	0.3 (0.2, 0.3)
65–74 years	0.4 (0.3, 0.7)	0.3 (0.2, 0.5)
75–84 years	0.6 (0.4, 1.1)	0.6 (0.4, 0.8)
≥85 years	0.7 (0.3, 1.7)	0.8 (0.5, 1.2)
Total	0.3 (0.3, 0.4)	0.3 (0.2, 0.3)
Acute suppurative otitis media		
0–4 years	15135.2 (14298.5, 16020.7)	12541.0 (12150.6, 12943.9)
5–17 years	3449.2 (3219.0, 3696.0)	2916.2 (2804.0, 3032.9)
18–39 years	937.2 (850.7, 1032.5)	757.2 (717.3, 799.3)
40–64 years	773.7 (700.7, 854.4)	641.0 (607.2, 676.7)
65–74 years	695.9 (551.6, 877.8)	562.1 (500.6, 631.1)
75–84 years	665.1 (496.7, 890.5)	549.3 (469.7, 642.4)
≥85 years	574.0 (336.6, 979.1)	482.7 (373.9, 623.3)
Total	2019.3 (1947.4, 2093.8)	1616.7 (1584.4, 1649.6)

Abbreviation: PCV13, the 13-valent pneumococcal conjugate vaccine

Supplementary Table 6: Incidence of bacterial community-acquired pneumonia, pneumococcal pneumonia and acute suppurative otitis media according to age-group before and after implementation of 13-valent pneumococcal conjugate vaccine (PCV) program in British Columbia, 2005–2018

Age group	Incidence per 100,000 population (95% Confidence interval)	
	Study estimate	
	Pre-PCV13 period	PCV13 period
Bacterial community-acquired pneumonia		
0–4 years	607.4 (593.3, 621.9)	731.3 (719.4, 743.5)
5–17 years	209.8 (205.0, 214.7)	276.3 (271.9, 280.7)
18–39 years	136.0 (133.3, 138.8)	195.6 (193.1, 198.1)
40–64 years	240.9 (237.6, 244.2)	442.7 (439.3, 446.1)
65–74 years	553.9 (543.1, 565.0)	1063.8 (1053.6, 1074.2)
75–84 years	1072.0 (1053.3, 1091.1)	2135.6 (2115.7, 2155.7)
≥85 years	2230.1 (2186.2, 2274.8)	4593.9 (4549.6, 4638.7)
Total	324.9 (322.6, 327.2)	596.6 (594.2, 599)
Pneumococcal pneumonia, hospitalized		
0–4 years	4.0 (3.0, 5.4)	4.6 (3.7, 5.6)
5–17 years	1.3 (0.9, 1.7)	1.6 (1.3, 2.0)
18–39 years	3.1 (2.7, 3.6)	2.1 (1.9, 2.4)
40–64 years	7.2 (6.7, 7.8)	6.3 (5.9, 6.7)
65–74 years	14.4 (12.7, 16.3)	10.3 (9.4, 11.4)
75–84 years	19.9 (17.5, 22.6)	15.3 (13.7, 17.1)
≥85 years	26.8 (22.4, 32.1)	18.8 (16.1, 21.9)
Total	6.5 (6.2, 6.8)	5.5 (5.2, 5.7)
Pneumococcal pneumonia, nonhospitalized		
0–4 years	64.4 (59.9, 69.2)	69.3 (65.7, 73.1)
5–17 years	28.1 (26.4, 29.9)	27.9 (26.5, 29.4)
18–39 years	21.2 (20.2, 22.3)	18.9 (18.2, 19.7)
40–64 years	39.1 (37.8, 40.4)	40.5 (39.5, 41.5)
65–74 years	85.2 (81.0, 89.6)	91.8 (88.8, 94.8)
75–84 years	143.9 (137.1, 151.0)	161.6 (156.2, 167.2)
≥85 years	263.7 (248.9, 279.3)	332.0 (320.2, 344.2)
Total	46.2 (45.4, 47.1)	51.2 (50.5, 51.9)
Acute suppurative otitis media		
0–4 years	15854.1 (15781.3, 15927.2)	11232.5 (11185.5, 11279.8)
5–17 years	6017.8 (5992.1, 6043.6)	4657.9 (4639.7, 4676.2)
18–39 years	1594.7 (1585.3, 1604.1)	1109.9 (1103.9, 1115.9)
40–64 years	1276.8 (1269.2, 1284.5)	934.7 (929.8, 939.7)
65–74 years	1142.8 (1127.2, 1158.7)	861.2 (852.0, 870.6)
75–84 years	1158.1 (1138.7, 1178.0)	843.0 (830.6, 855.7)
≥85 years	1178.6 (1146.8, 1211.2)	790.1 (771.9, 808.8)
Total	2775.8 (2769.0, 2782.5)	1957.7 (1953.4, 1962.0)

Abbreviation: PCV13, the 13-valent pneumococcal conjugate vaccine

Supplementary Figure 1: Annual incidence of pneumococcal pneumonia in: (A) Ontario (B) British Columbia, 2005–2018

Supplementary Figure 2: Age group-specific incidence of pneumococcal pneumonia before and after implementation of 13-valent pneumococcal conjugate vaccine (PCV13) program in: (A) Ontario (B) British Columbia, 2005–2018