Supplementary Material

Risk of Major Types of Dementias Following Hospital-Diagnosed Infections and Autoimmune Diseases

METHODS

We utilized the various national registries in addition to the Danish Quality Database for Dementia (DanDem) to identify all dementia cases diagnosed in Denmark between 2016-2020. In the registries except for DanDem, we used ICD and ATC codes to extract dementia records as defined below in Supplementary Table S. In DanDem, diagnoses are registered in text (however based on ICD criteria). To define a dementia record in DanDem, we included all of the following diagnoses: AD, Mixed dementia (AD + VaD), VaD, Other specific neurodegenerative disease, Lewy Body dementia, Parkinson dementia, Frontotemporal Dementia, ParkinsonPlus (Progressive supranuclear palsy/corticobasal degeneration/multiple system atrophy), Normal pressure hydrocephalus, Huntington's Chorea, and unspecific etiology dementia.

From all memory clinic records, we disregarded records if they were: with MCI, cognitively intact, diagnosed with alcohol-related dementia, affective disease, or other non-neurodegenerative disease. People with such records were treated in our analyses as non-cases and were treated similarly to other persons with a disease that is not dementia (or any of the selected comorbidities in this study). These were counted as cases if they later get a dementia record (as defined above). This was true for 3% of all the cases in this study. People with these records were also eligible to be controls until they are censored on the date of dementia (if such a date was present). This was true for 1% of all controls in our study.

Supplementary Table 1. ICD and ATC codes for dementia and selected comorbidities (defined from NPR, PCRR, and NPrR)

	ICD-8 and 10	ATC code
All-cause dementia	29009 - 29011, 29018, 29019, 29309-19, F00*, F01*, F03*, F020, F021-F028, G30*, G310A, G310B, G319, G318, G318E	N06DA02-04, N06DX01
Hypertension	400*, 401*, 402*, 403*, 404*, 41009, 41109, 41209, 41309, 41409, 43509, 43700, 43701, 43708, 43709, 43809, I10*-I13*, I15*	C02*-C04*, C07*-C09*
Diabetes	249*, 250*, E10*-E14*	A10A*, A10B*
Stroke	430*, 431*, 432*, 433*, 434*, 436*, I60*-I64*, I69*	-
Myocardial infarction	41099, I21*, I22*, I23*	-
Hypercholesteremia	27900, E780*	C10*

For prescriptions, the comorbidity was defined if a person redeemed a minimum of two prescriptions of the ATC codes, at any time during the study period. The date of the comorbidity is the first diagnosis or prescription. Note: If the code further includes subcodes and all are also included, then this is denoted by a star (*). If there are no subcodes or if specific ones are included, then these are listed. For ICD-8 codes the 5-digit code is the most detailed, and no subcodes exist, while for ICD-10 codes the 3-digit code and letter is the most detailed, and no subcodes exist

Supplementary Table 2. ICD codes for infection diagnoses, by infection type and for autoimmune diseases, by disease type

	ICD-8	ICD-10
Infection type		
Bacterial	000*, 001*, 002*, 003*, 004*, 005*, 00809, 00819, 00820, 00821, 00829, 00839, 009*, 010*, 011*, 012*, 013*, 014*, 015*, 016*, 017*, 018*, 019*, 020*, 021*, 022*, 023*, 024*, 025*, 026*, 027*, 030*, 031*, 032*, 033*, 034*, 035*, 036*, 037*, 038*, 039*, 073*, 076*, 077*, 07809, 07939, 080*, 081*, 082*, 083*, 08909, 090*, 091*, 092*, 093*, 094*, 095*, 096*, 097*, 098*, 09909, 09919, 09929, 09991, 09992, 09993, 100*, 101*, 102*, 103*, 104*, 11180, 113*, 28940, 32009, 32019, 32080, 322*, 32400, 32408, 32409, 36000, 36004, 36200, 36201, 36202, 36208, 36209, 36600, 36800, 36801, 36805, 36806, 36808, 36809, 36900, 36901, 38000, 38001, 38003, 38008, 38009, 381*, 382*, 383*, 42000, 421*, 46201, 480*, 481*, 482*, 483*, 484*, 485*, 486*, 50199, 50800, 50801, 50802, 50803, 50805, 510*, 513*, 52209, 52219, 52249, 52259, 52269, 52309, 52319, 52339, 52349, 52649, 52728, 52729, 52739, 52830, 52838, 52839, 52903, 540*, 541*, 542*, 56212, 566*, 567*, 57200, 57201, 57404, 57405, 57502, 57504, 57508, 57509, 57703, 590*, 59500, 59501, 59502, 59508, 59509, 59703, 59900, 59901, 59906, 59907, 60100, 60101, 60102, 604*, 60773, 61100, 61101, 61108, 61109, 612*, 61600, 61601, 61602, 61603, 62200, 62203, 62211, 62212, 62213, 62214, 62215, 62216, 630*, 63109, 63110, 63111, 63119, 63129, 63139, 63481, 63500, 63501, 63509, 63590, 64000, 64002, 64010, 64012, 64020, 64022, 64090, 64092, 64100, 64102, 64110, 64112, 64120, 64122, 64130, 64132, 64140, 64142, 64150, 64152, 64160, 64162, 64170, 64172, 64190, 64192, 64209, 64229, 64239, 64300, 64302, 64380, 64382, 64390, 64392, 64490, 64492, 64500, 64502, 64510, 64512, 64520, 64522, 64530, 64532, 64540, 64542, 64550, 64552, 64560, 64562, 64570, 64572, 64580, 64582, 64590, 64592, 670*, 67800, 67801, 67803, 680*, 681*, 682*, 683*, 684*, 68501, 68600, 68608, 68609, 68691, 68695, 68699, 710*, 71491, 72000, 72001, 72002, 72003, 72008, 72009, 72010, 72011, 72012, 72013, 72018, 72019, 72029, 72031, 73103, 76309, Y4109, Y4119	A00*, A01*, A02*, A03*, A04*, A05*, A09*, A15*, A16*, A17*, A18*, A19*, A20*, A21*, A22*, A23*, A24*, A25*, A26*, A27*, A28*, A29*, A30*, A31*, A32*, A33*, A34*, A35*, A36*, A37*, A38*, A39*, A40*, A41*, A42*, A43*, A44*, A46*, A48*, A49*, A50*, A51*, A52*, A53*, A54*, A55*, A56*, A57*, A58*, A64*, A65*, A66*, A67*, A68*, A69*, A70*, A71*, A74*, A75*, A77*, A78*, A79*, B471, B95*, B96*, B92*, B90*, H000*, H010, H018, H019, H040, H043*, H050, H050A, H050B, H050C, H050D, H050E, H100, H103, H105, H440*, H600* H601*, H602, H603*, H608*, H609, H610, H620, H66*, H670, H700, H701, H702, H709, H730*, H731, I301, I301A, I301B, I301C, I301D, I320, I33*, I38*, I410, I520, I880A, I891, I891A, J010, J011, J020, J020A, J028, J029C, J030, J038, J039D, J040C, J051, J13*, J14*, J15*, J16*, J170, J178, J18*, J200, J200A, J201, J201A, J202, J202A, J22*, J340, J340A, J340B, J340D, J340I, J340J, J36*, J383C, J383D, J387F, J387G, J390*, J390A, J390B, J390C, J391*, J391A, J391B, J391C, J398A, J411, J659, J85*, J86*, J950A, J985D, K040*, K041*, K044, K045, K046, K046A, K047*, K050, K051, K051A, K051B, K051C, K052*, K053*, K102, K102A, K102B, K102C, K102D, K102G, K102H, K112*, K113*, K122*, K130A, K140A, K209A, K230, K35*, K36*, K37*, K401, K404, K411, K414, K421, K431, K434, K437, K441, K451*, K461, K570*, K572*, K574, K578, K61*, K628N, K630, K650*, K658, K658A, K658F, K658I, K670, K671, K672, K673, K750*, K751, K803*, K810A, K810B, K810C, K810D, K830, K830A, K830B, K830C, K830D, K858A, K930, L00*, L01*, L02*, L03*, L04*, L050, L08*, L738H, M00*, M010, M011, M012, M013, M462, M463*, M464, M465*, M490, M491, M492, M600, M608A, M608A1, M630, M650, M680, M680G, M680H, M710, M726, M730, M731, M86*, M900, N10*, N110, N110A, N111, N111A, N111B, N118A, N118B, N118C, N118D, N119, N12*, N136*, N151*, N200I, N201I, N209A, N300, N302, N308, N308A, N308B, N308C, N308E, N308F, N308G, N308J, N308K, N309, N330, N340*, N390, N410, N411, N412, N412A, N431, N45*, N481C, N482*, N491A, N491B, N492*, N498C, N61*, N700, N700A, N700B, N700C, N700D, N700E, N700F, N700G, N701A, N701B, N710, N710A, N710C, N710D, N710E, N710F, N710A, N711A, N711B, N711F, N711A, N730*, N731*, N732*, N733*, N734*, N735*, N738*, N739, N740, N741, N741A, N742, N743, N744, N751, N758A, N758B, N758C, N760, N760B, N760C, N760D, N760E, N764*, N768, N768A, N768B, N768C, G00*, G01*, G042, G042A, G042B, G050,

		G050P, G050R, G050S, G060, G060A, G060B, G060C, G060E, G060F, G061, G061A, G061C, G061F, G062*, G07*, T793, T801, T802*, T814*, T826*, T827*, T835*, T836*, T845*, T846*, T847, T857*, T874, T880*, R827, R827B, R572, D733, E321, E236A, O030, O035, O080*, O23*, O358A, O411*, O859*, O860*, O861*, O862*, O863, O863A, O863B, O868, O883, O91*, O980, O981, O982, O983, O988C, O988F, O988H
Viral	00880, 00889, 00890, 040*, 041*, 042*, 043*, 044*, 045*, 046*, 050*, 051*, 051*, 053*, 054*, 055*, 056*, 057*, 060*, 061*, 062*, 063*, 064*, 065*, 066*, 067*, 068*, 070*, 071*, 072*, 074*, 075*, 07819, 07829, 07889, 07899, 07909, 07910, 07911, 07912, 07918, 07919, 07929, 07949, 07950, 07951, 07959, 07980, 07981, 07989, 07999, 09990, 36005, 42301, 46099, 46401, 470*, 471*, 472*, 473*, 474*, 57000, 57001, 57008, 57009, 57209, 57303, 76129, 76139	A08*, A60*, A63*, A80*, A81*, A82*, A83*, A84*, A85*, A86*, A87*, A88*, A89*, A90*, A91*, A92*, A93*, A94*, A95*, A96*, A98*, A99*, B00*, B01*, B02*, B03*, B04*, B05*, B06*, B07*, B08*, B09*, B15*, B16*, B17*, B18*, B19*, B25*, B26*, B27*, B30*, B33*, B34*, B91*, B941*, B942*, B97*, H102, H191, H621, H671, I301E, I411, J00*, J09*, J10*, J11*, J12*, J171, J203, J203A, J204, J204A, J205, J205A, J206, J206A, J207, J207A, J210, J211, K720A, K720E, K720F, K759A, M014, M015, G020, G041, G051, G051U, G051V, G051X, Z21*, D762, O353*, O984, O985*, O988A, O988B, O988D, O988E
Other	006*, 007*, 00899, 07982, 07984, 084*, 085*, 086*, 087*, 088*, 08999, 09999, 110*, 11109, 11119, 11129, 11189, 11199, 112*, 114*, 115*, 116*, 117*, 120*, 121*, 122*, 123*, 124*, 125*, 126*, 127*, 128*, 129*, 130*, 131*, 132*, 133*, 134*, 13600, 13601, 13603, 13609, 32089, 32090, 32091, 32092, 32093, 32099, 323*, 352*, 355*, 36008, 36009, 36108, 36109, 36300, 36308, 36309, 36390, 36391, 36392, 36393, 36394, 36395, 36398, 36399, 365*, 36602, 36603, 36604, 36700, 36701, 36702, 36709, 36903, 36904, 36905, 38400, 38401, 38402, 42001, 42008, 42009, 42299, 42302, 45702, 45703, 461*, 46200, 46208, 46209, 463*, 46400, 46402, 46403, 46408, 46409, 46599, 46600, 46601, 46608, 46609, 49000, 49009, 49101, 49104, 50002, 50209, 50210, 50211, 50212, 50213, 50215, 50218, 50219, 50300, 50301, 50302, 50303, 50304, 50305, 50306, 50308, 50309, 50699, 51400, 51990, 52720, 52721, 52722, 52800, 52801, 52808, 52809, 52850, 52900, 52901, 52908, 52909, 52929, 53090, 53091, 53098, 59320, 59351, 59700, 59708, 59709, 60103, 60108, 60109, 60739, 60749, 60759, 613*, 614*, 61519, 620*, 62201, 62202, 62208, 62209, 62218, 62219, 62949, 63599, 63991, 67809, 68696, 70402, 73299, 76149, 76319, 76399, Y4129, Y4139, Y4189, Y4199	A06*, A07*, A59*, B35*, B36*, B37*, B38*, B39*, B40*, B41*, B42*, B43*, B44*, B45*, B46*, B47, B470*, B48*, B49*, B50*, B51*, B52*, B53*, B54*, B55*, B56*, B57*, B58*, B59*, B60*, B64*, B65*, B66*, B67*, B68*, B69*, B70*, B71*, B72*, B73*, B74*, B75*, B76*, B77*, B78*, B79*, B80*, B81*, B82*, B83*, B85*, B86*, B87*, B88*, B89*, B94, B940*, B948*, B949*, B99*, H030, H031, H044, H044A, H051, H061, H104, H108, H109, H130, H131, H132, H150, H151, H160A, H161*, H162*, H163, H168, H169, H181, H184B, H191A, H191C, H192, H192L, H192M, H193*, H220, H300*, H301*, H302, H309, H308, H320, H350E, H441, H441A, H441E, H451, H469C, H469A, H481, H622, H623, H624, H65* H678, H680 H708, H750, H812, H830, H940, I308, I309, I321, I328, I398, I40*, I412, I430, I514, I514B, I521, I681, I891B, I891C, J012, J013, J014, J018, J019, J029, J029A, J029B, J039, J039A, J039B, J039C, J039E, J039F, J040, J040A, J040B, J040D, J041, J042, J050, J06*, J172, J173, J208, J208A, J209, J209A, J218, J219, J31*, J32*, J350, J37*, J40*, J410, J418, J429A, J429B, J440, J441, J986D, K121*, K130B, K130C, K130D, K130E, K130F, K130G, K140, K140B, K140D, K209, K221C, K231, K298, K628I, K628L, K659, K678, K770, K830E, K830G, K858D, K858E, K858F, K861A, K931, L303, L738, L738A M016, M018, M493, M600A, M601, M608, M609, M631, M632, M651, M711, M729A, M792B, M901, M902, N080, N118, N160, N220, N291, N341, N342, N342G, N343, N370, N413, N413A, N418, N419, N481, N481A, N481B, N490, N491, N498, N498A, N498B, N498M, N499, N511K, N511L, N512, N701, N701C, N701D, N701E, N701F, N701G, N701H, N709, N709A, N709B, N709C, N711, N711D, N711E, N719, N72*, N748, N761,

		N761A, N761B, N761C, N761D, N762*, N763*, N765, N766*, N77*, G021, G028, G031, G032, G038, G039, G040, G040A, G048, G048A, G048B, G048C, G049, G049A, G049B, G049C, G049D, G052, G052K, G052L, G052M, G052N, G058, G08*, G500C, G500D, G518D, G630, G734, G940, Z229, O268D, O358B, O986, O988, O988G, O989
Autoimmune disease type		
Organ-specific	281.0*, 283.90–91, 446.49, 245.03, 255.1*, 340*, 364*, 563.01, 563.19, 571.93, 571.90, 269.00, 694*, 696.09–10, 696.19, 443.19, 693.09, 695.29, 446.19, 287.09, 695.49, 701.01, 701.08, 701.09, 446.09, 366.02	D51.0, D59.1, D69.3, E06.3*, E27.1*, G35*, H20*, K50*, K51*, K73*, K74.3*, K90.0*, L10.0, L10.1, L10.2, L10.3, L10.4, L10.8*, L10.9, L12*, L40.0*, L40.1*, L40.2*, L40.3*, L40.8*, L40.9, M31.1B, I73.1, L13.0, L52*, M31.0A, D69.0B, L93*, L94.0*, L94.1, L94.3, M30.0, H44.1B
Systemic	712.19, 712.39, 712.59, 446.29, 716*, 446.30–31, 446.39, 733.09, 734.0*, 734.19, 734.90, 712.49, 136.02, 135	M05*, M06*, M31.3, M33*, M31.5*, M31.6*, M35.3, G70.0, M34.0, M34.1, M34.8*, M34.9, M32.1, M32.9, M35.0*, M45*, M35.2, D86*

If the code further includes subcodes and all are also included, then this is denoted by a star (*). If there are no subcodes or if specific ones are included, then these are listed. For ICD-8 codes the 5-digit code is the most detailed, and no subcodes exist, while for ICD-10 codes the 3-digit code and letter is the most detailed, and no subcodes exist.

Supplementary Table 3. Population characteristics for memory clinic AD, VaD, other dementias, and unspecific etiology cases and controls

	AD		VaD		Other		Unspecific	
	Cases (%)	Controls (%)	Cases (%)	Controls (%)	Cases (%)	Controls (%)	Cases (%)	Controls (%)
N total	18,960	56,880	3366	10,098	2,713	8,139	1,699	5,097
Sex								
Women	11,583 (61)	34,749 (61)	1,708 (51)	5,124 (51)	1,181 (44)	3,543 (44)	960 (57)	2,880 (57)
Men	7,377 (39)	22,131 (39)	1,658 (49)	4,974 (49)	1,532 (56)	4,596 (56)	739 (44)	2,217 (44)
Age at index date								
65-74 y	3,545 (19)	10,625 (19)	681 (20)	2,053 (20)	870 (32)	2,611 (32)	418 (25)	1,258 (25)
75-84 y	9,538 (50)	28,656 (50)	1,692 (50)	5,065 (50)	1,428 (53)	4,283 (53)	801 (47)	2,405 (47)
85++ y	5,877 (31)	17,599 (31)	993 (30)	2,980 (30)	415 (15)	1,245 (15)	480 (28)	1,434 (28)
Median (IQR)	81 (76-86)	81 (76-86)	81 (76-85)	81 (76-85)	78 (73-82)	78 (73-82)	80 (75-85)	80 (75-85)
Mean (min-max)	81 (65 -101)	81 (64-101)	80 (65- 100)	80 (64-100)	78 (65-102)	78 (64-102)	80 (65-100)	80 (64-100)
Education at index date*								
Low	15,088 (80)	45,060 (79)	2,752 (82)	7,943 (79)	2,085 (77)	6,195 (76)	1,367 (80)	3,960 (78)
Medium	2,663 (14)	8,213 (14)	415 (12)	1,462 (14)	418 (15)	1,326 (16)	218 (13)	750 (15)
High	771 (4)	2,325 (4)	117 (3)	468 (5)	166 (6)	433 (5)	57 (3)	243 (5)
Comorbidities at index date								
HTN	14,726 (78)	44,083 (78)	3,004 (89)	7,774 (77)	2,035 (75)	5,992 (74)	1,392 (82)	3,896 (76)
DM	3,047 (16)	8,189 (14)	840 (25)	1,507 (15)	444 (16)	1,264 (16)	333 (20)	752 (15)
HYP	10,331 (54)	28,316 (50)	2,358 (70)	5,156 (51)	1,424 (52)	4,117 (51)	918 (54)	2,512 (49)
MI	1,515 (8)	4,592 (8)	381 (11)	869 (9)	205 (8)	664 (8)	136 (8)	384 (8)
Stroke	2,703 (14)	6,758 (12)	1,601 (48)	1,238 (12)	376 (14)	864 (11)	292 (17)	611 (12)
Any infection	9,824 (52)	27,300 (48)	2,132 (63)	4,827 (48)	1,471 (54)	3,727 (46)	1,014 (60)	2,433 (48)
Age at first infection								
Median (IQR)	71 (60-79)	70 (60-78)	70 (60-78)	70 (60-78)	68 (57-76)	67 (57-75)	70 (58-78)	69 (59-78)
Mean (min-max)	69 (30-98)	69 (30-99)	68 (30-99)	68 (31-95)	66 (32-96)	65 (31-99)	68 (34-98)	68 (30-98)
Any autoimmune disease	1,940 (10)	5,770 (10)	380 (11)	1007 (10)	244 (9)	755 (9)	204 (12)	488 (10)
Age at first autoimmune disease								
Median (IQR)	70 (62-77)	70 (62-77)	69 (60-77)	70 (61-77)	68 (59-73)	66 (58-74)	68 (59-75)	69 (61-77)
Mean (min-max)	69 (31-95)	69 (31-97)	68 (37-92)	69 (34-91)	66 (32-90)	66 (32-94)	67 (35-90)	68 (34-91)

AD includes also mixed dementia (VaD +AD). *Missing education information for 438 AD cases and 1,282 controls, 82 VaD cases and 225 controls, 44 other cases and 185 controls, and 57 unspecific etiology dementia cases and 144 controls. IQR, interquartile range; HTN, hypertension; DM, diabetes mellitus; HYP, hypercholesterolemia; MI, myocardial infarction.

Supplementary Table 4. Crude dementia IRRs following infections in memory clinic and non-memory clinic cases, and with a 10-year lag period.

Dementia cases	Exposure group	Crude IRR (95% CI)	Crude IRR (95% CI), 10-year lag period
Non-memory clinic All-cause dementia	Any infection	1.82 (1.75-1.90)	1.18 (1.13-1.24)
	1 infection	1.44 (1.36-1.51)	1.13 (1.07-1.19)
	2 infections	1.87 (1.75-1.99)	1.25 (1.14-1.36)
	3+ infections	2.46 (2.33-2.60)	1.38 (1.24-1.54)
	Any infection, women	1.80 (1.71-1.91)	1.21 (1.14-1.29)
	Any infection, men	1.84 (1.73-1.96)	1.14 (1.07-1.22)
	Age at index date 65-74 y	2.00 (1.81-2.20)	1.35 (1.22-1.50)
	Age at index date 75-84 y	1.89 (1.77-2.02)	1.21 (1.12-1.30)
	Age at index date 85++ y	1.67 (1.56-1.79)	1.10 (1.02-1.18)
Memory clinic All-cause dementia	Any infection	1.29 (1.26-1.33)	1.10 (1.06-1.13)
	1 infection	1.20 (1.16-1.24)	1.09 (1.05-1.13)
	2 infections	1.31 (1.25-1.37)	1.10 (1.03-1.17)
	3+ infections	1.45 (1.39-1.51)	1.14 (1.06-1.24)
	Any infection, women	1.28 (1.23-1.32)	1.07 (1.03-1.11)
	Any infection, men	1.31 (1.26-1.37)	1.13 (1.08-1.19)
	Age at index date 65-74 y	1.42 (1.34-1.51)	1.23 (1.15-1.32)
	Age at index date 75-84 y	1.29 (1.24-1.34)	1.08 (1.04-1.13)
	Age at index date 85++ y	1.20 (1.14-1.27)	1.02 (0.96-1.08)
Memory clinic-AD	Any infection	1.17 (1.13-1.21)	1.04 (1.00-1.08)
	1 infection	1.14 (1.10-1.19)	1.04 (1.00-1.09)
	2 infections	1.17 (1.11-1.23)	1.05 (0.97-1.13)
	3+ infections	1.22 (1.16-1.28)	1.01 (0.92-1.12)
Memory clinic-VaD	Any infection	1.91 (1.76-2.07)	1.37 (1.26-1.49)
	1 infection	1.53 (1.39-1.70)	1.29 (1.17-1.43)
	2 infections	2.14 (1.90-2.42)	1.48 (1.26-1.74)
	3+ infections	2.37 (2.13-2.64)	1.63 (1.33-2.00)
Memory clinic-Other	Any infection	1.42 (1.30-1.55)	1.11 (1.00-1.22)
	1 infection	1.27 (1.14-1.41)	1.13 (1.00-1.26)
	2 infections	1.45 (1.26-1.67)	1.02 (0.83-0.24)
	3+ infections	1.70 (1.49-1.93)	1.14 (0.89-1.46)
Memory clinic-Unspecific	Any infection	1.63 (1.46-1.83)	1.20 (1.06-1.36)
	1 infection	1.31 (1.14-1.51)	1.14 (0.99-1.31)
	2 infections	1.51 (1.26-1.80)	1.12 (0.88-1.43)
	3+ infections	2.39 (2.05-2.79)	1.73 (1.31-2.29)

Supplementary Table 5. Crude dementia IRRs following infections by type of infection in memory clinic and non-memory clinic cases, and with a 10-year lag period.

Dementia cases	Exposure group	Crude IRR (95% CI)	Crude IRR (95% CI), 10-year lag period
Non-memory clinic All-cause dementia	Bacterial	1.86 (1.78-1.95)	1.16 (1.10-1.23)
	Viral	1.50 (1.27-1.78)	1.19 (1.00-1.41)
	Other	1.13 (1.01-1.25)	1.14 (1.04-1.25)
	Mixed	2.08 (1.95-2.22)	1.34 (1.21-1.48)
Memory clinic All-cause dementia	Bacterial	1.32 (1.28-1.36)	1.09 (1.05-1.13)
	Viral	1.29 (1.15-1.44)	1.09 (0.97-1.23)
	Other	1.04 (0.97-1.11)	1.09 (1.02-1.16)
	Mixed	1.34 (1.28-1.40)	1.12 (1.03-1.20)
Memory clinic-AD	Bacterial	1.20 (1.15-1.24)	1.05 (1.01-1.10)
	Viral	1.28 (1.12-1.47)	1.04 (0.90-1.21)
	Other	1.00 (0.92-1.08)	1.02 (0.95-1.10)
	Mixed	1.15 (1.09-1.22)	1.01 (0.92-1.11)
Memory clinic-VaD	Bacterial	1.94 (1.78-2.12)	1.36 (1.23-1.50)
	Viral	1.30 (0.93-1.82)	1.48 (1.07-2.04)
	Other	1.36 (1.13-1.64)	1.28 (1.07-1.53)
	Mixed	2.18 (1.92-2.46)	1.51 (1.24-1.84)
Memory clinic-Other	Bacterial	1.46 (1.32-1.62)	1.10 (1.00-1.24)
	Viral	1.40 (1.00-1.95)	1.11 (0.78-1.58)
	Other	1.04 (0.85-1.27)	1.14 (0.94-1.40)
	Mixed	1.52 (1.31-1.75)	1.07 (0.84-1.36)
Memory clinic-Unspecific	Bacterial	1.64 (1.44-1.86)	1.10 (0.95-1.27)
	Viral	1.12 (0.69-1.81)	0.90 (0.55-1.48)
	Other	1.05 (0.81-1.37)	1.35 (1.07-1.72)
	Mixed	2.06 (1.74-2.45)	1.66 (1.26-2.17)

Supplementary Table 6. Crude dementia IRRs following autoimmune diseases in memory clinic and non-memory clinic cases

Dementia cases	Exposure group	Crude IRR (95% CI)
Non-memory clinic All-cause dementia	Any disease	1.09 (1.02-1.17)
	Any disease, women	1.11 (1.02-1.21)
	Any disease, men	1.05 (0.94-1.18)
	Age at index date 65-74 y	1.11 (0.94-1.31)
	Age at index date 75-84 y	1.11 (1.00-1.24)
	Age at index date 85++ y	1.06 (0.96-1.18)
	Organ-specific	1.15 (1.04-1.27)
	Systemic	1.02 (0.94-1.12)
	Mixed	1.47 (1.12-1.94)
Memory clinic All-cause dementia	Any disease	1.04 (0.99-1.09)
	Any disease, women	1.04 (0.98-1.10)
	Any disease, men	1.04 (0.97-1.13)
	Age at index date 65-74 y	1.08 (0.97-1.20)
	Age at index date 75-84 y	1.03 (0.96-1.10)
	Age at index date 85++ y	1.03 (0.95-1.12)
	Organ-specific	1.10 (1.02-1.18)
	Systemic	0.98 (0.92-1.04)
	Mixed	1.34 (1.12-1.62)
Memory clinic-AD	Any disease	1.01 (0.96-1.07)
	Organ-specific	1.06 (0.97-1.15)
	Systemic	0.96 (0.90-1.03)
	Mixed	1.20 (0.96-1.50)
Memory clinic-VaD	Any disease	1.15 (1.01-1.30)
	Organ-specific	1.25 (1.03-1.50)
	Systemic	1.01 (0.85-1.20)
	Mixed	2.18 (1.34-3.54)
Memory clinic-Other	Any disease	0.97 (0.83-1.13)
	Organ-specific	0.96 (0.77-1.20)
	Systemic	0.97 (0.79-1.19)
	Mixed	1.02 (0.54-1.94)
Memory clinic-Unspecific	Any disease	1.29 (1.08-1.53)
	Organ-specific	1.52 (1.17-1.98)
	Systemic	1.08 (0.86-1.37)
	Mixed	2.28 (1.14-4.54)

Supplementary Figure 1. Sensitivity analysis results

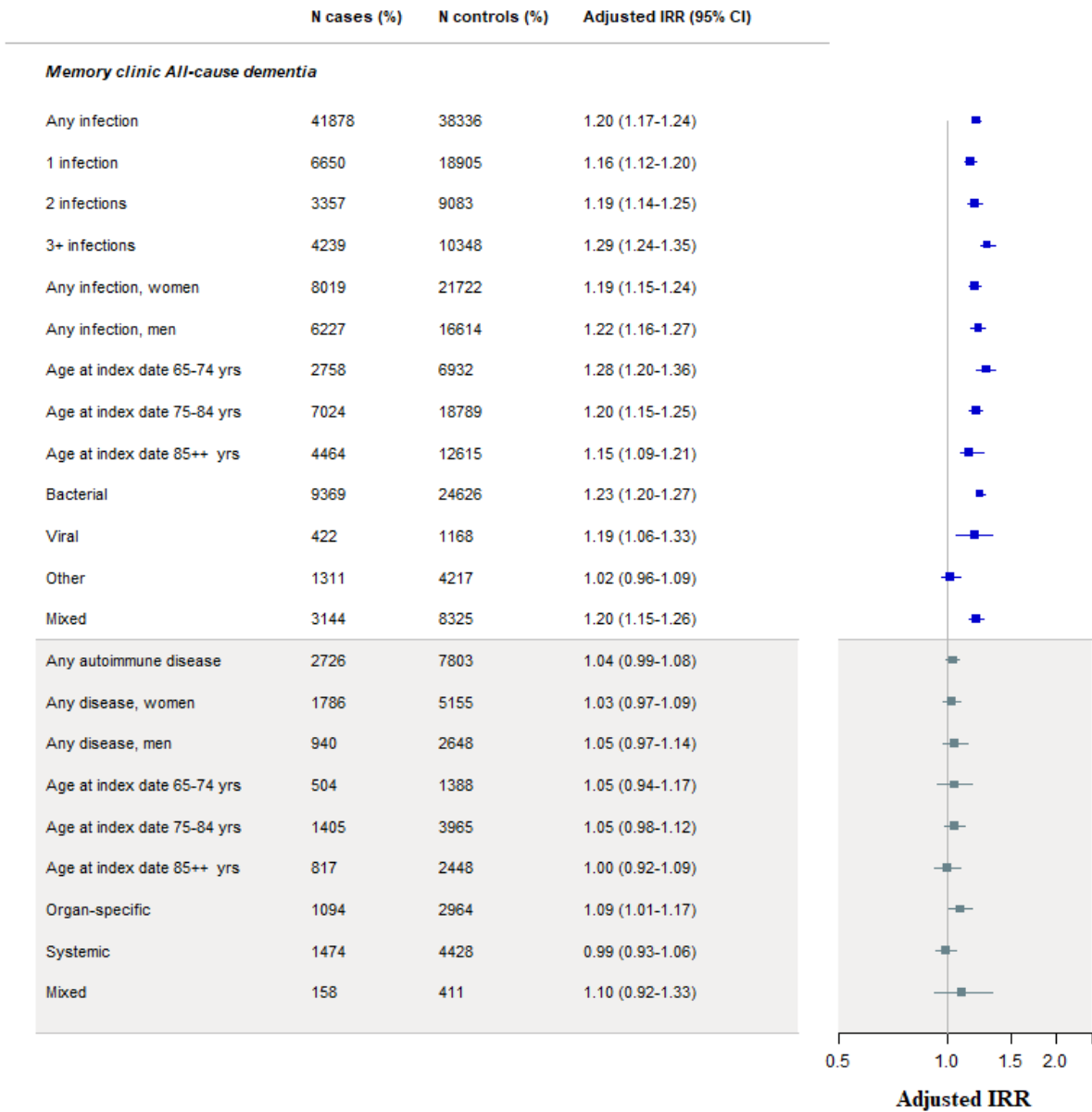|	N cases (%)	N controls (%)	Adjusted IRR (95% CI)	
Memory clinic All-cause dementia				
Any infection	41878	38336	1.20 (1.17-1.24)	
1 infection	6650	18905	1.16 (1.12-1.20)	
2 infections	3357	9083	1.19 (1.14-1.25)	
3+ infections	4239	10348	1.29 (1.24-1.35)	
Any infection, women	8019	21722	1.19 (1.15-1.24)	
Any infection, men	6227	16614	1.22 (1.16-1.27)	
Age at index date 65-74 yrs	2758	6932	1.28 (1.20-1.36)	
Age at index date 75-84 yrs	7024	18789	1.20 (1.15-1.25)	
Age at index date 85++ yrs	4464	12615	1.15 (1.09-1.21)	
Bacterial	9369	24626	1.23 (1.20-1.27)	
Viral	422	1168	1.19 (1.06-1.33)	
Other	1311	4217	1.02 (0.96-1.09)	
Mixed	3144	8325	1.20 (1.15-1.26)	
Any autoimmune disease	2726	7803	1.04 (0.99-1.08)	
Any disease, women	1786	5155	1.03 (0.97-1.09)	
Any disease, men	940	2648	1.05 (0.97-1.14)	
Age at index date 65-74 yrs	504	1388	1.05 (0.94-1.17)	
Age at index date 75-84 yrs	1405	3965	1.05 (0.98-1.12)	
Age at index date 85++ yrs	817	2448	1.00 (0.92-1.09)	
Organ-specific	1094	2964	1.09 (1.01-1.17)	
Systemic	1474	4428	0.99 (0.93-1.06)	
Mixed	158	411	1.10 (0.92-1.33)	

Adjusted IRR

Figure presents the IRRs of dementia following infections and autoimmune diseases for memory clinic all-cause dementia cases (stratified by infection burden, sex, age at index date, and infection and autoimmune disease type). The sensitivity analysis is made by redefining the index date for the cases for whom an earlier date outside of the memory clinic was also available. The forest plot represents the adjusted IRRs when no lag period was applied. IRRs were adjusted for highest attained educational level, stroke, myocardial infarction, hypertension, diabetes, and hypercholesterolemia (with age at index date and sex as matching variables, and the regression model accounted for this matching).