Trends in the annual consultation incidence and prevalence of low back pain and osteoarthritis in England: comparative estimates from the Clinical Practice Research Datalink GOLD and AURUM databases

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Table S1. Published UK estimates of low back pain incidence and prevalence estimates from EHR/administrative data

Database	Year	Case definition	Parameter	Estimate
(a) Prevalence				
RCGP WRS [1]	2001	One or more (Read codes mapped to ICD9 724 "Back disorders unspecified other") consultation in 12-month period	Age-standardised annual person-consulting prevalence rate	40.5 per 1,000 persons (all ages)
	2001	One or more (Read codes mapped to ICD9 721 "Spondylosis and allied disorders") consultation in 12-month period	Age-standardised annual person-consulting prevalence rate	5.8 per 1,000 persons (all ages)
	2001	One or more (Read codes mapped to ICD9 722 "Intervertebral disk disorder") consultation in 12-month period	Age-standardised annual person-consulting prevalence rate	2.2 per 1,000 persons (all ages)
CiPCA [2]	2000-2004	One or more (? Read codes "Back disorders unspecified") consultation in 12-month period	Age-standardised annual person-consulting prevalence rate	2000: 29.2 per 1,000 persons aged 65+ years 2003: 35.3 per 1,000 persons aged 65+ years 2004: 40.1 per 1,000 persons aged 65+ years
CiPCA [3]	2006	One or more (Read codes selected from chapters N, R, S, 1 "lower back") consultation in 12-month period	Age-standardised annual person-consulting prevalence rate	41.7 per 1,000 persons (all ages)
CiPCA [4]	2010	One or more (ICD10 codes mapped to Read codes "low back pain") consultation in 12-month period	Crude annual person-consulting prevalence rate	58.7 per 1,000 persons (all ages)† 54.3 per 1,000 persons (all ages)‡
			Crude 7-year period person-consulting prevalence rate	211.3 per 1,000 persons (all ages) † 205.3 per 1,000 persons (all ages) ‡
CALIBER (CPRD GOLD + HES) [5]	2010-2015	One or more (selected Read codes from chapters 7, N, and Z) primary care consultations or finished consultant episodes (ICD10 M50-51) mapped to "intervertebral disk disorder")¶	Age-sex standardized 5-year period person-consulting prevalence rate	31.5 per 1,000 persons (all ages)

CiPCA Consultations in Primary Care Archive; CPRD Clinical Practice Research Datalink; HES Hospital Episode Statistics; RCGP WRS Royal College of General Practitioners Weekly Returns Service

† Based on primary care and secondary data available through primary care EHR

‡ Based on primary care data only

¶ Include cervical and thoracic spine codes

[1] Fleming DM, Cross KW, Barley MA. Recent changes in the prevalence of diseases presenting for health care. Br J Gen Pract. 2005 Aug;55(517):589-95.

[2] Hughes H, Jordan KP, Rajaratnam G, Fawcett S, Croft P. Recent changes in general practice morbidity in older people. *Age Ageing.* 2008;37:572-575. **PMID: 18487261**

[3] Jordan KP, Kadam UT, Hayward R, Porcheret M, Young C, Croft P. Annual consultation prevalence of regional musculoskeletal problems in primary care: an observational study. BMC Musculoskelet Disord. 2010 Jul 2;11:144. doi: 10.1186/1471-2474-11-144.

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Table S2. Published UK estimates of osteoarthritis incidence and prevalence estimates from EHR/administrative data

Database	Year	Case definition	Parameter	Estimate
(a) Prevalence				
RCGP WRS [1]	2001	One or more (Read codes mapped to ICD9 715) consultation in 12-month period	Age-standardised annual person-consulting prevalence rate	22.4 per 1,000 persons (all ages)
MSGP4 [2]	1991-1992	One or more (Read N05) consultation in 12-month period	Age-sex standardized annual person-consulting prevalence rate	42.6 per 1,000 persons (aged 15+ years)
RCGP WRS [2]	2001	One or more (Read N05) consultation in 12-month period	Age-sex standardized annual person-consulting prevalence rate	27.6 per 1,000 persons (aged 15+ years)
GPRD [2]	1991	One or more (Read N05) consultation in 12-month period	Age-sex standardized annual person-consulting prevalence rate	3.8 per 1,000 persons (aged 15+ years)
GPRD [2]	2001	One or more (Read N05) consultation in 12-month period	Age-sex standardized annual person-consulting prevalence rate	16.4 per 1,000 persons (aged 15+ years)
CiPCA [2]	2001	One or more (Read N05) consultation in 12-month period	Age-sex standardized annual person-consulting prevalence rate	23.2 per 1,000 persons (aged 15+ years)
CiPCA [3]	2000-2004	One or more (Read N05) consultation in 12-month period	Age-standardised annual person-consulting prevalence rate	2000: 65.9 per 1,000 persons (aged 65+ years) 2003: 70.2 per 1,000 persons (aged 65+ years) 2004: 64.9 per 1,000 persons (aged 65+ years)
CiPCA [4]	2010	One or more (Read N05) consultation in 12-month period	Crude annual person-consulting prevalence rate	21.1 per 1,000 persons (all ages)† 17.6 per 1,000 persons (all ages)‡ 44.7 per 1,000 persons (aged 45+ years† 37.5 per 1,000 persons (aged 45+ years‡
			Age-sex standardized 7-year period person-consulting prevalence rate	65.1 per 1,000 persons (all ages) † 58.6 per 1,000 persons (all ages) ‡ 138.8 per 1,000 persons aged 45+ years† 125.4 per 1,000 persons aged 45+ years‡
CALIBER (CPRD GOLD + HES) [5]	2010-2015	One or more (Read code N05, and 14 selected Nyu and 3 symptom codes) primary care consultations or finished consultant episodes (ICD10 M15-19)	Age-sex standardized 5-year period person-consulting prevalence rate	127.2 per 1,000 persons (all ages)
CPRD GOLD [6]	1997-2017	One or more (Read N05) consultation in 12-month period	Age-sex-LOD standardized prevalence rate (ever)	1998: 82.3 per 1,000 persons (aged 20+ years) 1999: 84.7 per 1,000 persons (aged 20+ years) 2000: 89.4 per 1,000 persons (aged 20+ years) 2001: 90.8 per 1,000 persons (aged 20+ years) 2002: 92.7 per 1,000 persons (aged 20+ years)

				2003: 94.7 per 1,000 persons (aged 20+ years) 2004: 97.7 per 1,000 persons (aged 20+ years) 2005: 102.1 per 1,000 persons (aged 20+ years) 2006: 106.2 per 1,000 persons (aged 20+ years) 2007: 106.4 per 1,000 persons (aged 20+ years) 2008: 109.1 per 1,000 persons (aged 20+ years) 2009: 109.1 per 1,000 persons (aged 20+ years) 2010: 109.3 per 1,000 persons (aged 20+ years) 2011: 109.4 per 1,000 persons (aged 20+ years) 2012: 108.7 per 1,000 persons (aged 20+ years) 2013: 109.0 per 1,000 persons (aged 20+ years) 2014: 109.5 per 1,000 persons (aged 20+ years) 2015: 109.3 per 1,000 persons (aged 20+ years) 2016: 109.5 per 1,000 persons (aged 20+ years) 2017: 107.7 per 1,000 persons (aged 20+ years)
(b) Incidence				
CiPCA [7]	2010	One or more (Read N05) consultation in 12-month period (10-year run-in)	Crude annual person-consulting incidence rate	7.2 per 1,000 persons (all ages) 8.6 per 1,000 persons (aged 15+ years) 16.1 per 1,000 persons (aged 45+ years)
CPRD GOLD [8]	1992-2013	One or more (Read N05) consultation in 12-month period (3-year run-in)	Age-sex standardised annual person-consulting incidence density	1992: 8.1 per 1,000 persons (all ages) 1993: 7.7 per 1,000 persons (all ages) 1994: 7.0 per 1,000 persons (all ages) 1995: 7.2 per 1,000 persons (all ages) 1996: 7.7 per 1,000 persons (all ages) 1997: 8.1 per 1,000 persons (all ages) 1998: 8.1 per 1,000 persons (all ages) 1999: 8.2 per 1,000 persons (all ages) 2000: 7.9 per 1,000 persons (all ages) 2001: 8.0 per 1,000 persons (all ages) 2002: 7.9 per 1,000 persons (all ages) 2003: 8.3 per 1,000 persons (all ages) 2004: 8.6 per 1,000 persons (all ages) 2005: 8.5 per 1,000 persons (all ages) 2006: 7.8 per 1,000 persons (all ages) 2007: 7.6 per 1,000 persons (all ages) 2008: 7.8 per 1,000 persons (all ages) 2009: 7.6 per 1,000 persons (all ages) 2010: 7.1 per 1,000 persons (all ages) 2011: 7.0 per 1,000 persons (all ages)

				2012: 6.7 per 1,000 persons (all ages) 2013: 6.3 per 1,000 persons (all ages)
CPRD GOLD [6]	1997-2017	One or more (Read N05) consultation in 12-month period (variable whole-record run-in)	Age-sex-LOD standardized annual person-consulting incidence density	1998: 9.5 per 1,000 persons (aged 20+ years) 1999: 9.7 per 1,000 persons (aged 20+ years) 2000: 9.6 per 1,000 persons (aged 20+ years) 2001: 9.4 per 1,000 persons (aged 20+ years) 2002: 9.6 per 1,000 persons (aged 20+ years) 2003: 10.0 per 1,000 persons (aged 20+ years) 2004: 10.4 per 1,000 persons (aged 20+ years) 2005: 10.3 per 1,000 persons (aged 20+ years) 2006: 9.6 per 1,000 persons (aged 20+ years) 2007: 9.5 per 1,000 persons (aged 20+ years) 2008: 9.6 per 1,000 persons (aged 20+ years) 2009: 9.4 per 1,000 persons (aged 20+ years) 2010: 8.7 per 1,000 persons (aged 20+ years) 2011: 8.5 per 1,000 persons (aged 20+ years) 2012: 8.1 per 1,000 persons (aged 20+ years) 2013: 7.9 per 1,000 persons (aged 20+ years) 2014: 7.8 per 1,000 persons (aged 20+ years) 2015: 7.5 per 1,000 persons (aged 20+ years) 2016: 7.2 per 1,000 persons (aged 20+ years) 2017: 6.8 per 1,000 persons (aged 20+ years)
CiPCA Consultations in Primary Care Archive; CPRD Clinical Practice Research Datalink; GPRD General Practice Research Database; HES Hospital Episode Statistics; LOD Length of data contribution; MSGP Morbidity Survey in General Practice; RCGP WRS Royal College of General Practitioners Weekly Returns Service; † Based on primary care and secondary data available through primary care EHR ‡ Based on primary care data only				

[1] Fleming DM, Cross KW, Barley MA. Recent changes in the prevalence of diseases presenting for health care. Br J Gen Pract. 2005 Aug;55(517):589-95.

[2] Jordan K, Clarke AM, Symmons DP. et al. Measuring disease prevalence: a comparison of musculoskeletal disease using four general practice consultation databases. Br J Gen Pract 2007;57:7–14. [PMC free article] [PubMed] [Google Scholar]

[3] Hughes H, Jordan KP, Rajaratnam G, Fawcett S, Croft P. Recent changes in general practice morbidity in older people. *Age Ageing.* 2008;37:572-575. **PMID: 18487261**

[4] Jordan KP, Jöud A, Bergknut C. et al. International comparisons of the consultation prevalence of musculoskeletal conditions using population-based healthcare data from England and Sweden. Ann Rheum Dis 2014;73:212–8. [PMC free article] [PubMed] [Google Scholar]

[5] Kuan V, Denaxas S, Gonzalez-Izquierdo A, Direk K, Bhatti O, Husain S, et al. A chronological map of 308 physical and mental health conditions from 4 million

individuals in the English National Health Service. The Lancet Digital Health. 2019 /06/01;1(2):e63-77.

[6] Swain S, Sarmanova A, Mallen C, Kuo CF, Coupland C, Doherty M, Zhang W. Trends in incidence and prevalence of osteoarthritis in the United Kingdom: findings from the Clinical Practice Research Datalink (CPRD). Osteoarthritis Cartilage. 2020 Jun;28(6):792-801. doi: 10.1016/j.joca.2020.03.004.

[7] Yu D, Peat G, Bedson J, Jordan KP.. Annual consultation incidence of osteoarthritis estimated from population-based health care data in England. Rheumatology 2015;54:2051–60. [PMC free article] [PubMed] [Google Scholar]

[8] Yu D, Jordan KP, Bedson J, Englund M, Blyth F, Turkiewicz A, Prieto-Alhambra D, Peat G. Population trends in the incidence and initial management of osteoarthritis: age-period-cohort analysis of the Clinical Practice Research Datalink, 1992-2013. Rheumatology (Oxford). 2017 Nov 1;56(11):1902-1917. doi: 10.1093/rheumatology/kex270.

Table S3. List of published international estimates of low back pain incidence and prevalence estimates from EHR/administrative data

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Fatoye F, Gebrye T, Odeyemi I. Real-world incidence and prevalence of low back pain using routinely collected data. Rheumatol Int 2019;39:619-626.
Jöud A, Petersson IF, Englund M (2012) Low back pain: epidemiology of consultations. Arthritis Care Res; 2012; 64(7):1084–1088
Bartholomeeusen S, Van Zundert J, Truyers C, Buntinx F, Paulus D. Higher incidence of common diagnoses in patients with low back pain in primary care. Pain Pract; 2012; 12(1):1–6
Kostev K. Real-world prevalence and incidence of lower back pain in Germany. Rheumatol Int. 2019 Jun;39(6):1113. doi: 10.1007/s00296-019-04295-8.
Spijker-Huiges A, Groenhof F, Winters JC, van Wijhe M, Groenier KH, van der Meer K (2015) Radiating low back pain in general practice: incidence, prevalence, diagnosis, and long-term clinical course of illness. Scand J Prim Health Care; 2015; 33(1):27–32

Table S4. List of published international estimates of osteoarthritis incidence and prevalence estimates from EHR/administrative data

Harrold LR, Yood RA, Andrade SE, Reed JI, Cernieux J, Straus W, Weeks M, Lewis B, Gurwitz JH. Evaluating the predictive value of osteoarthritis diagnoses in an administrative database. *Arthritis Rheum*. 2000;43(8):1881-5. **PMID: 10943880**
Kopec JA, Rahman MM, Berthelot JM. et al. Descriptive epidemiology of osteoarthritis in British Columbia, Canada. J Rheumatol 2007;34:386–93. [PubMed] [Google Scholar]
Kopec JA, Rahman MM, Sayre EC. et al. Trends in physician-diagnosed osteoarthritis incidence in an administrative database in British Columbia, Canada, 1996-1997 through 2003-2004. Arthritis Rheum 2008;59:929–34. [PubMed] [Google Scholar]
Ladouceur M, Rahme E, Pineau CA, Joseph L. Robustness of prevalence estimates derived from misclassified data from administrative databases. *Biometrics*. 2007;63(1):272-9. **PMID: 17447953**
Marshall DA, Vanderby S, Barnabe C. et al. Estimating the burden of osteoarthritis to plan for the future. Arthritis Care Res 2015;67:1379–86. [PubMed] [Google Scholar]
Nielen MM, van Sijl AM, Peters MJ, Verheij RA, Schellevis FG, Nurmohamed MT. Cardiovascular disease prevalence in patients with inflammatory arthritis, diabetes mellitus and osteoarthritis: a cross-sectional study in primary care. *BMC Musculoskelet Disord*. 2012;13:150. **PMID: 22906083**
Postler A, Ramos AL , Goronzy J , Günther K-P [1], Lange T [3], Schmitt J, Zink A, Hoffmann F. Prevalence and treatment of hip and knee osteoarthritis in people aged 60 years or older in Germany: an analysis based on health insurance claims data. Clin Interv Aging 2018;13:2339-2349.
Prieto-Alhambra D, Judge A, Javaid MK. et al. Incidence and risk factors for clinically diagnosed knee, hip and hand osteoarthritis: influences of age, gender and osteoarthritis affecting other joints. Ann Rheum Dis 2014;73:1659–64. [PMC free article] [PubMed] [Google Scholar]
Puts MT, Deeg DJ, Hoeymans N, Nusselder WJ, Schellevis FG. Changes in the prevalence of chronic disease and the association with disability in the older Dutch population between 1987 and 2001. Age Ageing. 2008 Mar;37(2):187-93. doi: 10.1093/ageing/afm185
Rahman MM, Cibere J, Goldsmith CH, Anis AH, Kopec JA.. Osteoarthritis incidence and trends in administrative health records from British Columbia, Canada. J Rheumatol 2014;41:1147–54. [PubMed] [Google Scholar]
Sacks JJ, Luo YH, Helmick CG. Prevalence of specific types of arthritis and other rheumatic conditions in the ambulatory health care system in the United States, 2001-2005. *Arthritis Care Res (Hoboken)*. 2010;62(4):460-4. **PMID: 20391499**
Schers H, Bor H, van den Hoogen H, van Weel C.. What went and what came? Morbidity trends in general practice from the Netherlands. Eur J Gen Pract 2008;14:13–24. [PubMed] [Google Scholar]
Sun J, Gooch K, Svenson LW, Bell NR, Frank C.. Estimating osteoarthritis incidence from population-based administrative health care databases. Ann Epidemiol 2007;17:51–6. [PubMed] [Google Scholar]
Turkiewicz A, Petersson IF, Björk J. et al. Current and future impact of osteoarthritis on health care: a population-based study with projections to year 2032. Osteoarthritis Cartilage 2014;22:1826–32. [PubMed] [Google Scholar]

van den Dungen C, Hoeymans N, Boshuizen HC. et al. The influence of population characteristics on variation in general practice based morbidity estimations. BMC Public Health 2011;11:887.. [PMC free article] [PubMed] [Google Scholar]
van der Waal JM, Bot SD, Terwee CB. et al. The incidences of and consultation rate for lower extremity complaints in general practice. Ann Rheum Dis 2006;65:809–15. [PMC free article] [PubMed] [Google Scholar]
van den Dungen C, Hoeymans N, Boshuizen HC, van den Akker M, Biermans MC, van Boven K, Brouwer HJ, Verheij RA, de Waal MW, Schellevis FG, Westert GP. The influence of population characteristics on variation in general practice based morbidity estimations. *BMC Public Health*. 2011;11:887. **PMID: 22111707**
Westert GP, Schellevis FG, de Bakker DH, Groenewegen PP, Bensing JM, van der Zee J. Monitoring health inequalities through general practice: the Second Dutch National Survey of General Practice. *Eur J Public Health*. 2005;15(1):59-65. **PMID: 15788805**

Table S5. Comparative estimates from CPRD Aurum and CPRD GOLD databases of annual consultation incidence of low back pain: England, 2000-2019

Standard population = mid-2019 English population aged 15+ years (ONS code: E92000001)

Year	CPRD Aurum				CPRD GOLD			
	Incident Cases	Person-years	Crude incidence IR (95%CI)	Age-sex-standardised incidence IR (95% CI)	Incident Cases	Person-years	Crude incidence IR (95%CI)	Age-sex-standardised incidence IR (95% CI)
2000	96,971	4,897,353	19.80 (19.68 to 19.93)	19.53 (19.49 to 19.58)	34,728	91,0720	38.13 (37.73 to 38.53)	37.69 (37.63 to 37.75)
2001	113,150	4,992,711	22.66 (22.53 to 22.80)	22.36 (22.32 to 22.41)	41,522	1,038,826	39.97 (39.59 to 40.35)	39.46 (39.41 to 39.52)
2002	130,969	5,104,210	25.66 (25.52 to 25.80)	25.34 (25.30 to 25.39)	49,312	1,228,010	40.16 (39.80 to 40.51)	39.70 (39.64 to 39.75)
2003	147,516	5,181,238	28.47 (28.33 to 28.62)	28.19 (28.14 to 28.23)	61,182	1,482,419	41.27 (40.94 to 41.60)	40.87 (40.81 to 40.93)
2004	165,639	5,235,441	31.64 (31.49 to 31.79)	31.38 (31.33 to 31.43)	72,557	1,711,481	42.39 (42.09 to 42.70)	42.01 (41.95 to 42.07)
2005	170,041	5,257,090	32.35 (32.19 to 32.50)	32.18 (32.12 to 32.23)	82,314	1,915,150	42.98 (42.69 to 43.27)	42.73 (42.67 to 42.79)
2006	172,810	5,317,234	32.50 (32.35 to 32.65)	32.36 (32.31 to 32.41)	87,617	2,055,897	42.62 (42.34 to 42.90)	42.33 (42.27 to 42.39)
2007	176,398	5,363,130	32.89 (32.74 to 33.04)	32.79 (32.74 to 32.84)	89,186	2,098,283	42.50 (42.23 to 42.78)	42.26 (42.21 to 42.32)
2008	179,564	5,450,701	32.94 (32.79 to 33.10)	32.87 (32.82 to 32.93)	90,480	2,125,548	42.57 (42.29 to 42.85)	42.37 (42.31 to 42.43)
2009	187,080	5,493,373	34.06 (33.90 to 34.21)	33.98 (33.93 to 34.04)	91,679	2,124,245	43.16 (42.88 to 43.44)	42.96 (42.90 to 43.02)
2010	188,509	5,571,145	33.84 (33.68 to 33.99)	33.75 (33.70 to 33.81)	88,391	2,100,837	42.07 (41.80 to 42.35)	41.86 (41.80 to 41.92)
2011	195,455	5,629,210	34.72 (34.57 to 34.88)	34.58 (34.53 to 34.64)	87,061	2,055,142	42.36 (42.08 to 42.64)	42.13 (42.07 to 42.19)
2012	197,371	5,679,782	34.75 (34.60 to 34.90)	34.61 (34.56 to 34.67)	83,563	2,009,975	41.57 (41.29 to 41.86)	41.35 (41.29 to 41.41)
2013	197,846	5,575,426	35.49 (35.33 to 35.64)	35.33 (35.28 to 35.39)	76,900	1,871,411	41.09 (40.80 to 41.38)	40.85 (40.79 to 40.91)
2014	200,626	5,527,640	36.30 (36.14 to 36.45)	36.15 (36.09 to 36.20)	66,900	1,655,953	40.40 (40.09 to 40.71)	40.18 (40.12 to 40.23)
2015	198,489	5,587,077	35.53 (35.37 to 35.68)	35.41 (35.36 to 35.46)	51,191	1,343,676	38.10 (37.77 to 38.43)	37.86 (37.81 to 37.92)
2016	194,823	5,701,288	34.17 (34.02 to 34.32)	34.07 (34.02 to 34.13)	34,266	962,723	35.59 (35.22 to 35.97)	35.37 (35.31 to 35.42)
2017	192,250	5,825,484	33.00 (32.85 to 33.15)	32.90 (32.85 to 32.95)	25,435	753,876	33.74 (33.32 to 34.15)	33.64 (33.59 to 33.69)
2018	191,039	6,024,216	31.71 (31.57 to 31.85)	31.62 (31.57 to 31.67)	20,522	642,415	31.95 (31.51 to 32.38)	31.77 (31.72 to 31.82)
2019	187,723	6,076,392	30.89 (30.75 to 31.03)	30.79 (30.74 to 30.84)	16,643	545,109	30.53 (30.07 to 31.00)	30.32 (30.27 to 30.37)

IR Incidence rate (per 1,000 person-years aged 15+ years)

Table S6. Comparative estimates from CPRD Aurum and CPRD GOLD databases of annual consultation prevalence of low back pain: England, 2000-2019

Standard population = mid-2019 English population aged 15+ years (ONS code: E92000001)

	CPRD Aurum				CPRD GOLD			
Year	Prevalent Case	Person-years	Crude prevalence PR (95%CI), per 1,000 person-years	Age-sex-standardised prevalence PR (95% CI), per 1,000 person-years	Prevalent Case	Person-years	Crude prevalence PR (95%CI), per 1,000 person-years	Age-sex-standardised prevalence PR (95% CI), per 1,000 person-years
2000	139,705	5,382,312	25.96 (25.82 to 26.09)	25.46 (25.42 to 25.51)	56,540	1,086,243	52.05 (51.62 to 52.48)	50.87 (50.80 to 50.93)
2001	163,147	5,531,932	29.49 (29.35 to 29.63)	28.94 (28.89 to 28.98)	66,736	1,243,748	53.66 (53.25 to 54.06)	52.39 (52.32 to 52.45)
2002	191,152	5,710,359	33.47 (33.32 to 33.62)	32.86 (32.80 to 32.91)	79,089	1,470,240	53.79 (53.42 to 54.17)	52.57 (52.51 to 52.64)
2003	218,879	5,851,571	37.41 (37.25 to 37.56)	36.75 (36.70 to 36.81)	97,386	1,766,639	55.13 (54.78 to 55.47)	54.00 (53.94 to 54.07)
2004	251,109	5,987,032	41.94 (41.78 to 42.11)	41.25 (41.19 to 41.30)	115,760	2,045,869	56.58 (56.26 to 56.91)	55.42 (55.35 to 55.48)
2005	267,538	6,083,037	43.98 (43.81 to 44.15)	43.33 (43.27 to 43.39)	132,044	2,300,851	57.39 (57.08 to 57.70)	56.35 (56.29 to 56.42)
2006	280,633	6,207,393	45.21 (45.04 to 45.38)	44.54 (44.48 to 44.60)	141,356	2,513,284	56.24 (55.95 to 56.54)	55.20 (55.13 to 55.27)
2007	292,360	6,300,948	46.40 (46.23 to 46.57)	45.74 (45.67 to 45.80)	144,964	2,5772,07	56.25 (55.96 to 56.54)	55.24 (55.17 to 55.31)
2008	302,507	6,407,618	47.21 (47.04 to 47.38)	46.55 (46.49 to 46.62)	147,916	2,599,580	56.90 (56.61 to 57.19)	55.92 (55.86 to 55.99)
2009	316,893	6,486,970	48.85 (48.68 to 49.02)	48.15 (48.09 to 48.21)	150,546	2,612,542	57.62 (57.33 to 57.92)	56.63 (56.56 to 56.70)
2010	325,031	6,613,634	49.15 (48.98 to 49.31)	48.38 (48.32 to 48.45)	146,701	2,619,616	56.00 (55.71 to 56.29)	55.00 (54.94 to 55.07)
2011	338,559	6,702,767	50.51 (50.34 to 50.68)	49.68 (49.61 to 49.74)	145,263	2,569,076	56.54 (56.25 to 56.83)	55.50 (55.43 to 55.57)
2012	345,330	6,751,698	51.15 (50.98 to 51.32)	50.27 (50.20 to 50.33)	140,236	2,474,697	56.67 (56.37 to 56.96)	55.65 (55.58 to 55.72)
2013	346,713	6,818,946	50.85 (50.68 to 51.01)	49.99 (49.92 to 50.05)	129,843	2,401,578	54.07 (53.77 to 54.36)	53.09 (53.02 to 53.15)
2014	347,895	6,663,727	52.21 (52.03 to 52.38)	51.26 (51.19 to 51.32)	113,252	2,187,052	51.78 (51.48 to 52.08)	50.80 (50.73 to 50.86)
2015	343,397	6,722,695	51.08 (50.91 to 51.25)	50.21 (50.15 to 50.28)	87,128	1,840,532	47.34 (47.02 to 47.65)	46.46 (46.40 to 46.52)
2016	335,994	6,808,112	49.35 (49.19 to 49.52)	48.51 (48.45 to 48.58)	57,651	1,314,009	43.87 (43.52 to 44.23)	42.98 (42.92 to 43.04)
2017	326,601	6,936,165	47.09 (46.93 to 47.25)	46.28 (46.22 to 46.34)	42,047	993,228	42.33 (41.93 to 42.74)	41.61 (41.55 to 41.67)
2018	320,862	7,150,394	44.87 (44.72 to 45.03)	44.14 (44.08 to 44.20)	33,663	812,623	41.43 (40.98 to 41.87)	40.70 (40.64 to 40.76)
2019	311,043	7,274,733	42.76 (42.61 to 42.91)	42.04 (41.98 to 42.10)	27,294	704,293	38.75 (38.29 to 39.21)	37.97 (37.92 to 38.03)

PR Prevalence rate (per 1,000 person-years aged 15+ years)

Table S7. Comparative estimates from CPRD Aurum and CPRD GOLD databases of annual consultation incidence of osteoarthritis: England, 2000-2019

Standard population = mid-2019 English population aged 45+ years (ONS code: E92000001)

	CPRD Aurum				CPRD GOLD			
Year	Incident Case	Person-years	Crude incidence IR (95%CI)	Age-sex-standardised incidence IR (95% CI)	Incident Case	Person-years	Crude incidence IR (95%CI)	Age-sex-standardised incidence IR (95% CI)
2000	41,297	3,726,184	11.08 (10.98 to 11.19)	11.95 (11.91 to 11.99)	11,336	748,786	15.14 (14.86 to 15.42)	16.27 (16.23 to 16.32)
2001	46,289	3,826,678	12.10 (11.99 to 12.21)	13.09 (13.05 to 13.13)	13,331	858,565	15.53 (15.26 to 15.79)	16.60 (16.56 to 16.65)
2002	52,515	3,939,946	13.33 (13.21 to 13.44)	14.49 (14.45 to 14.53)	16,034	1,013,965	15.81 (15.57 to 16.06)	16.96 (16.91 to 17.00)
2003	57,478	4,029,882	14.26 (14.15 to 14.38)	15.58 (15.54 to 15.62)	19,712	1,227,087	16.06 (15.84 to 16.29)	17.23 (17.18 to 17.27)
2004	62,820	4,103,784	15.31 (15.19 to 15.43)	16.88 (16.83 to 16.92)	22,951	1,422,206	16.14 (15.93 to 16.35)	17.37 (17.33 to 17.42)
2005	61,026	4,154,130	14.69 (14.57 to 14.81)	16.32 (16.28 to 16.36)	25,392	1,596,500	15.90 (15.71 to 16.10)	17.20 (17.16 to 17.25)
2006	58,031	4,238,632	13.69 (13.58 to 13.80)	15.28 (15.24 to 15.32)	25,619	1,724,766	14.85 (14.67 to 15.04)	15.99 (15.95 to 16.04)
2007	59,613	4,302,949	13.85 (13.74 to 13.97)	15.45 (15.41 to 15.49)	25,984	1,767,655	14.70 (14.52 to 14.88)	15.81 (15.76 to 15.85)
2008	62,582	4,386,375	14.27 (14.16 to 14.38)	15.86 (15.82 to 15.90)	26,796	1,794,158	14.94 (14.76 to 15.11)	15.99 (15.95 to 16.04)
2009	64,509	4,430,389	14.56 (14.45 to 14.67)	16.09 (16.05 to 16.14)	26,392	1,793,377	14.72 (14.54 to 14.89)	15.66 (15.61 to 15.70)
2010	64,320	4,496,850	14.30 (14.19 to 14.41)	15.75 (15.71 to 15.80)	24,291	1,773,889	13.69 (13.52 to 13.87)	14.48 (14.44 to 14.52)
2011	64,993	4,548,278	14.29 (14.18 to 14.40)	15.62 (15.58 to 15.66)	23,654	1,735,116	13.63 (13.46 to 13.81)	14.26 (14.22 to 14.31)
2012	65,775	4,589,311	14.33 (14.22 to 14.44)	15.50 (15.46 to 15.54)	22,060	1,694,464	13.02 (12.85 to 13.19)	13.46 (13.42 to 13.50)
2013	69,776	4,502,026	15.50 (15.38 to 15.61)	16.59 (16.55 to 16.63)	20,456	1,573,831	13.00 (12.82 to 13.18)	13.34 (13.30 to 13.38)
2014	72,919	4,459,855	16.35 (16.23 to 16.47)	17.41 (17.36 to 17.45)	17,816	1,392,447	12.79 (12.61 to 12.98)	13.07 (13.03 to 13.11)
2015	75,984	4,489,945	16.92 (16.80 to 17.04)	17.96 (17.91 to 18.01)	14,022	1,126,640	12.45 (12.24 to 12.65)	12.68 (12.64 to 12.72)
2016	78,811	4,552,688	17.31 (17.19 to 17.43)	18.32 (18.28 to 18.37)	9,445	802,149	11.77 (11.54 to 12.01)	12.05 (12.01 to 12.09)
2017	81,131	4,615,523	17.58 (17.46 to 17.70)	18.56 (18.52 to 18.61)	7,002	620,960	11.28 (11.01 to 11.54)	11.76 (11.72 to 11.79)
2018	84,007	4,724,427	17.78 (17.66 to 17.90)	18.75 (18.70 to 18.79)	5,902	526,330	11.21 (10.93 to 11.50)	11.65 (11.61 to 11.68)
2019	86,788	4,720,838	18.38 (18.26 to 18.51)	19.34 (19.30 to 19.39)	5,065	443,826	11.41 (11.10 to 11.73)	11.82 (11.78 to 11.85)

Table S8. Comparative estimates from CPRD Aurum and CPRD GOLD databases of annual consultation prevalence of osteoarthritis: England, 2000-2019

Standard population = mid-2019 English population aged 45+ years (ONS code: E92000001)

	CPRD Aurum				CPRD GOLD			
Year	Prevalent Case	Person-years	Crude prevalence PR (95%CI)	Age-sex-standardised prevalence PR (95% CI)	Prevalent Case	Person-years	Crude prevalence PR (95%CI)	Age-sex-standardised prevalence PR (95% CI)
2000	65,016	3,967,884	16.39 (16.26 to 16.51)	17.16 (17.12 to 17.21)	17,911	814,548	21.99 (21.67 to 22.31)	22.61 (22.56 to 22.66)
2001	74,369	4,092,779	18.17 (18.04 to 18.30)	19.06 (19.01 to 19.10)	20,695	938,039	22.06 (21.76 to 22.36)	22.60 (22.55 to 22.65)
2002	86,367	4,236,826	20.38 (20.25 to 20.52)	21.37 (21.32 to 21.42)	24,877	1,109,806	22.42 (22.14 to 22.69)	22.98 (22.93 to 23.04)
2003	97,386	4,352,236	22.38 (22.24 to 22.52)	23.48 (23.42 to 23.53)	29,937	1,337,287	22.39 (22.13 to 22.64)	22.97 (22.92 to 23.02)
2004	110,383	4,457,156	24.77 (24.62 to 24.91)	26.08 (26.02 to 26.13)	34,799	1,549,914	22.45 (22.22 to 22.69)	23.08 (23.03 to 23.13)
2005	115,214	4,533,140	25.42 (25.27 to 25.56)	26.86 (26.80 to 26.92)	38,332	1,739,599	22.03 (21.81 to 22.26)	22.74 (22.69 to 22.79)
2006	114,273	4,635,488	24.65 (24.51 to 24.79)	26.12 (26.06 to 26.17)	38,305	1,902,462	20.13 (19.93 to 20.34)	20.70 (20.65 to 20.75)
2007	118,393	4,710,160	25.14 (24.99 to 25.28)	26.61 (26.55 to 26.66)	38,213	1,951,354	19.58 (19.39 to 19.78)	20.09 (20.04 to 20.14)
2008	123,488	4,789,563	25.78 (25.64 to 25.93)	27.22 (27.17 to 27.28)	38,711	1,964,753	19.70 (19.51 to 19.90)	20.17 (20.12 to 20.22)
2009	127,250	4,845,469	26.26 (26.12 to 26.41)	27.56 (27.50 to 27.62)	37,950	1,970,842	19.26 (19.06 to 19.45)	19.60 (19.55 to 19.64)
2010	129,243	4,934,739	26.19 (26.05 to 26.33)	27.40 (27.35 to 27.46)	34,789	1,971,838	17.64 (17.46 to 17.83)	17.89 (17.85 to 17.94)
2011	130,973	4,997,893	26.21 (26.06 to 26.35)	27.23 (27.17 to 27.29)	33,543	1,930,298	17.38 (17.19 to 17.56)	17.48 (17.43 to 17.52)
2012	131,863	5,025,291	26.24 (26.10 to 26.38)	26.95 (26.89 to 27.00)	31,097	1,853,221	16.78 (16.59 to 16.97)	16.70 (16.65 to 16.74)
2013	134,772	5,060,009	26.63 (26.49 to 26.78)	27.14 (27.09 to 27.20)	28,509	1,792,690	15.90 (15.72 to 16.09)	15.72 (15.68 to 15.76)
2014	136,845	4,932,601	27.74 (27.60 to 27.89)	28.06 (28.00 to 28.11)	24,779	1,633,535	15.17 (14.98 to 15.36)	14.93 (14.89 to 14.97)
2015	141,228	4,970,140	28.42 (28.27 to 28.56)	28.62 (28.56 to 28.68)	19,511	1,374,740	14.19 (13.99 to 14.39)	13.96 (13.92 to 14.00)
2016	145,145	5,021,526	28.90 (28.76 to 29.05)	29.00 (28.94 to 29.06)	12,861	984,515	13.06 (12.84 to 13.29)	12.82 (12.78 to 12.86)
2017	147,938	5,104,896	28.98 (28.83 to 29.13)	29.02 (28.96 to 29.08)	9,355	737,557	12.68 (12.43 to 12.94)	12.77 (12.73 to 12.81)
2018	151,592	5,246,027	28.90 (28.75 to 29.04)	28.86 (28.80 to 28.92)	7,772	604,000	12.87 (12.58 to 13.15)	13.01 (12.97 to 13.05)
2019	155,713	5,320,903	29.26 (29.12 to 29.41)	29.15 (29.10 to 29.21)	6,729	523,933	12.84 (12.54 to 13.15)	12.86 (12.82 to 12.90)

Table S9. Annual person-consulting prevalence of low back pain (without requirement for 3-year prior registration history): England, 2000-2019

Data source = CPRD Aurum

Standard population = mid-2019 English population aged 15+ years (ONS code: E92000001)

Year	Prevalent Case	Person-years	Crude prevalence PR (95%CI)	Age-sex-standardised prevalence PR (95% CI)
2000	186,808	7,557,814	24.72 (24.61 to 24.83)	25.07 (25.02 to 25.11)
2001	217,733	7,753,459	28.08 (27.96 to 28.20)	28.48 (28.44 to 28.53)
2002	254,473	7,949,603	32.01 (31.89 to 32.14)	32.50 (32.45 to 32.55)
2003	291,432	8,100,724	35.98 (35.85 to 36.11)	36.59 (36.54 to 36.65)
2004	334,056	8,279,856	40.35 (40.21 to 40.48)	41.11 (41.05 to 41.17)
2005	356,029	8,382,845	42.47 (42.33 to 42.61)	43.40 (43.34 to 43.46)
2006	372,412	8,533,691	43.64 (43.50 to 43.78)	44.66 (44.60 to 44.72)
2007	389,325	8,668,961	44.91 (44.77 to 45.05)	45.97 (45.91 to 46.03)
2008	400,941	8,768,024	45.73 (45.59 to 45.87)	46.85 (46.79 to 46.92)
2009	418,572	8,866,783	47.21 (47.06 to 47.35)	48.35 (48.28 to 48.41)
2010	427,415	8,997,417	47.50 (47.36 to 47.65)	48.62 (48.55 to 48.68)
2011	442,007	9,087,897	48.64 (48.49 to 48.78)	49.81 (49.74 to 49.87)
2012	451,257	9,188,311	49.11 (48.97 to 49.26)	50.22 (50.16 to 50.29)
2013	454,405	9,309,087	48.81 (48.67 to 48.95)	49.90 (49.84 to 49.97)
2014	459,286	9,268,588	49.55 (49.41 to 49.70)	50.62 (50.56 to 50.69)
2015	456,117	9,401,700	48.51 (48.37 to 48.66)	49.50 (49.44 to 49.56)
2016	446,608	9,560,907	46.71 (46.57 to 46.85)	47.73 (47.66 to 47.79)
2017	433,619	9,754,214	44.45 (44.32 to 44.59)	45.48 (45.42 to 45.54)
2018	422,586	9,961,238	42.42 (42.30 to 42.55)	43.46 (43.40 to 43.52)
2019	408,876	10,113,093	40.43 (40.31 to 40.55)	41.52 (41.46 to 41.58)

Table S10. Annual consultation prevalence of osteoarthritis (without requirement for 3-year prior registration history): England, 2000-2019

Data source = CPRD Aurum
Standard population = mid-2019 English population aged 45+ years (ONS code: E92000001)

Year	Prevalent Case	Person-years	Crude prevalence PR (95%CI)	Age-sex-standardised prevalence PR (95% CI)
2000	77,450	4,977,949	15.56 (15.45 to 15.67)	17.00 (16.95 to 17.04)
2001	88,322	5,122,753	17.24 (17.13 to 17.35)	18.90 (18.85 to 18.94)
2002	101,614	5,266,355	19.29 (19.18 to 19.41)	21.18 (21.13 to 21.23)
2003	114,093	5,375,872	21.22 (21.10 to 21.35)	23.37 (23.32 to 23.42)
2004	128,821	5,497,006	23.43 (23.31 to 23.56)	25.95 (25.89 to 26.00)
2005	133,979	5,564,452	24.08 (23.95 to 24.21)	26.81 (26.76 to 26.87)
2006	132,593	5,671,369	23.38 (23.25 to 23.51)	26.16 (26.10 to 26.21)
2007	137,346	5,764,886	23.82 (23.70 to 23.95)	26.67 (26.62 to 26.73)
2008	142,390	5,823,583	24.45 (24.32 to 24.58)	27.32 (27.27 to 27.38)
2009	146,087	5,878,200	24.85 (24.72 to 24.98)	27.62 (27.56 to 27.68)
2010	148,159	5,960,326	24.86 (24.73 to 24.98)	27.51 (27.45 to 27.57)
2011	149,759	6,014,070	24.90 (24.78 to 25.03)	27.34 (27.28 to 27.40)
2012	151,166	6,073,859	24.89 (24.76 to 25.01)	27.00 (26.94 to 27.05)
2013	155,130	6,150,778	25.22 (25.10 to 25.35)	27.18 (27.12 to 27.24)
2014	159,278	6,108,324	26.08 (25.95 to 26.20)	27.92 (27.86 to 27.97)
2015	165,708	6,208,239	26.69 (26.56 to 26.82)	28.45 (28.39 to 28.51)
2016	170,853	6,305,829	27.09 (26.97 to 27.22)	28.79 (28.73 to 28.85)
2017	173,550	6,426,991	27.00 (26.88 to 27.13)	28.61 (28.55 to 28.67)
2018	175,688	6,550,857	26.82 (26.69 to 26.94)	28.34 (28.28 to 28.40)
2019	179,661	6,634,035	27.08 (26.96 to 27.21)	28.56 (28.50 to 28.62)

Figure S1. Illustrative workflow chart for estimating annual person-consulting incidence of low back pain: West Midlands, 2017

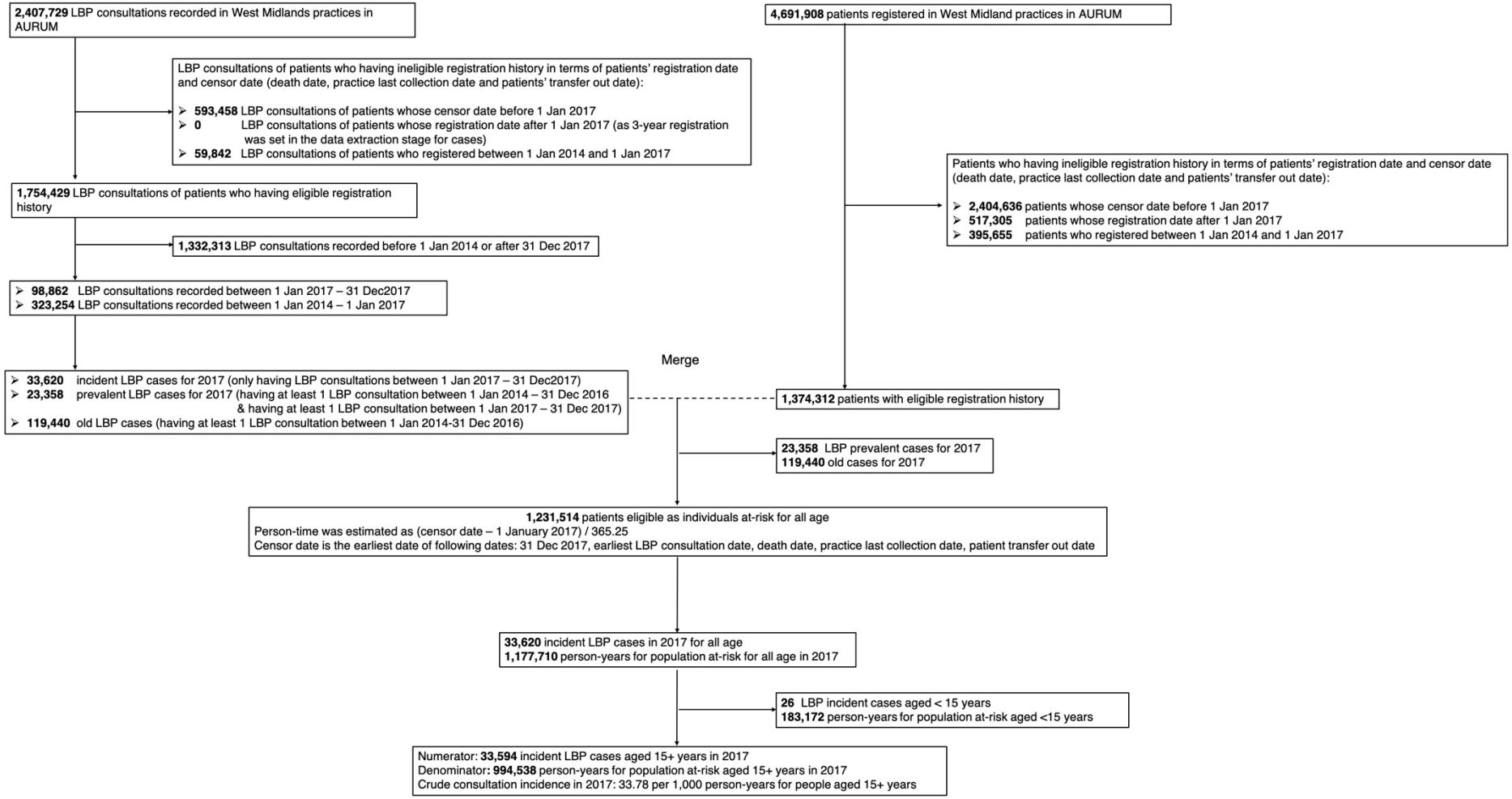

2,407,729 LBP consultations recorded in West Midlands practices in AURUM
LBP consultations of patients who having ineligible registration history in terms of patients' registration date and censor date (death date, practice last collection date and patients' transfer out date):
593,458 LBP consultations of patients whose censor date before 1 Jan 2017
0 LBP consultations of patients whose registration date after 1 Jan 2017 (as 3-year registration was set in the data extraction stage for cases)
59,842 LBP consultations of patients who registered between 1 Jan 2014 and 1 Jan 2017
1,754,429 LBP consultations of patients who having eligible registration history
1,332,313 LBP consultations recorded before 1 Jan 2014 or after 31 Dec 2017
98,862 LBP consultations recorded between 1 Jan 2017 – 31 Dec2017
323,254 LBP consultations recorded between 1 Jan 2014 – 1 Jan 2017
4,691,908 patients registered in West Midland practices in AURUM
Patients who having ineligible registration history in terms of patients' registration date and censor date (death date, practice last collection date and patients' transfer out date):
2,404,636 patients whose censor date before 1 Jan 2017
517,305 patients whose registration date after 1 Jan 2017
395,655 patients who registered between 1 Jan 2014 and 1 Jan 2017
Merge
33,620 incident LBP cases for 2017 (only having LBP consultations between 1 Jan 2017 – 31 Dec2017)
23,358 prevalent LBP cases for 2017 (having at least 1 LBP consultation between 1 Jan 2014 – 31 Dec 2016 & having at least 1 LBP consultation between 1 Jan 2017 – 31 Dec 2017)
119,440 old LBP cases (having at least 1 LBP consultation between 1 Jan 2014-31 Dec 2016)
1,374,312 patients with eligible registration history
23,358 LBP prevalent cases for 2017
119,440 old cases for 2017
1,231,514 patients eligible as individuals at-risk for all age
Person-time was estimated as (censor date – 1 January 2017) / 365.25
Censor date is the earliest date of following dates: 31 Dec 2017, earliest LBP consultation date, death date, practice last collection date, patient transfer out date
33,620 incident LBP cases in 2017 for all age
1,177,710 person-years for population at-risk for all age in 2017
26 LBP incident cases aged < 15 years
183,172 person-years for population at-risk aged <15 years
Numerator: 33,594 incident LBP cases aged 15+ years in 2017
Denominator: 994,538 person-years for population at-risk aged 15+ years in 2017
Crude consultation incidence in 2017: 33.78 per 1,000 person-years for people aged 15+ years

Figure S2. Illustrative workflow chart for estimating annual person-consulting prevalence of low back pain: West Midlands, 2017

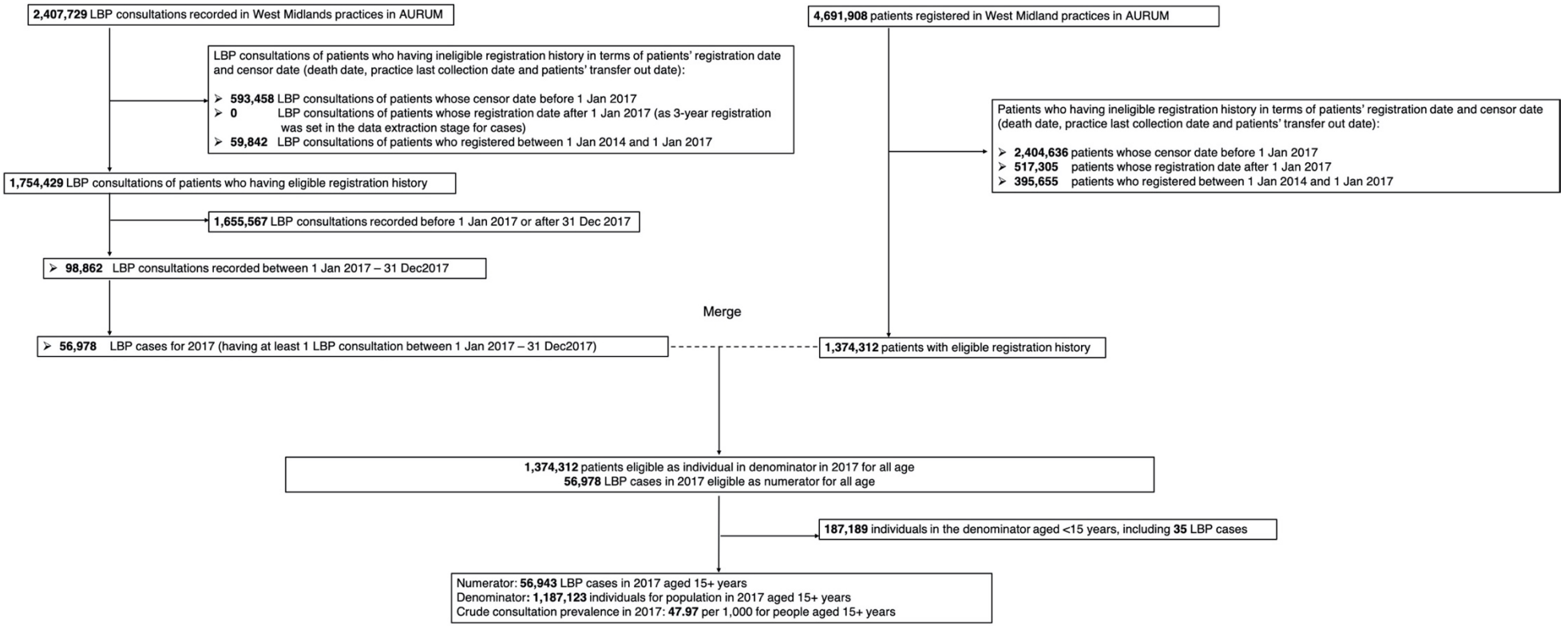


Figure S3. Annual consultation incidence of low back pain, by age and sex: England, 2000-2019

Data source = CPRD Aurum

Black dot, red square and blue diamond indicates age-standardised incidence (per 1,000 person-years) for all, women and men, respectively.

Standard population = mid-2019 English population aged 15+ years (ONS code: E92000001)

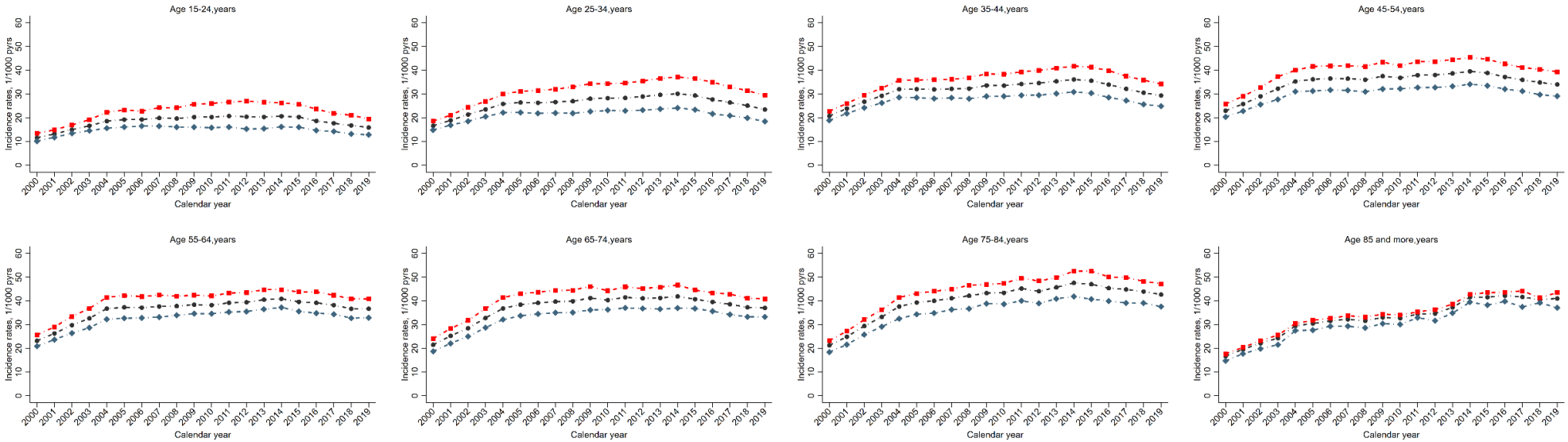


Figure S4. Annual consultation prevalence of low back pain, by age and sex: England, 2000-2019

Data source = CPRD Aurum

Black dot, red square and blue diamond indicates age-standardised incidence (per 1,000 person-years) for all, women and men, respectively.

Standard population = mid-2019 English population aged 15+ years (ONS code: E92000001)

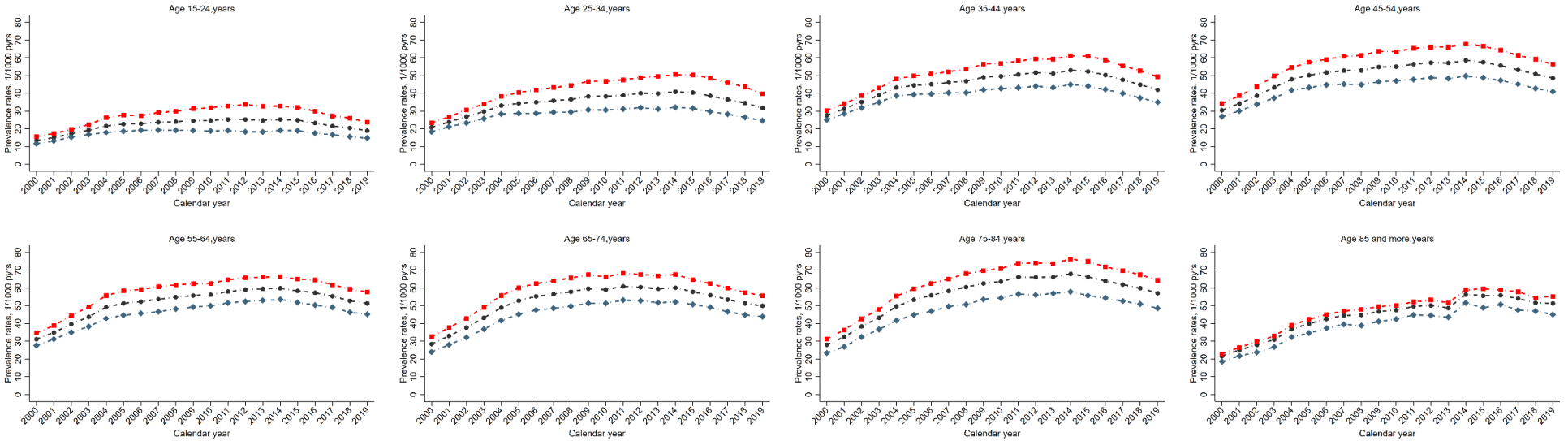


Figure S5. Annual consultation incidence of low back pain, by region: England, 2000-2019

Data source = CPRD Aurum
Red dot line indicates the age-sex standardised consultation incidence (per 1,000 person-years) in the region. Grey line indicates the age-sex standardised consultation incidence in England.
Standard population = mid-2019 English population aged 15+ years (ONS code: E92000001)

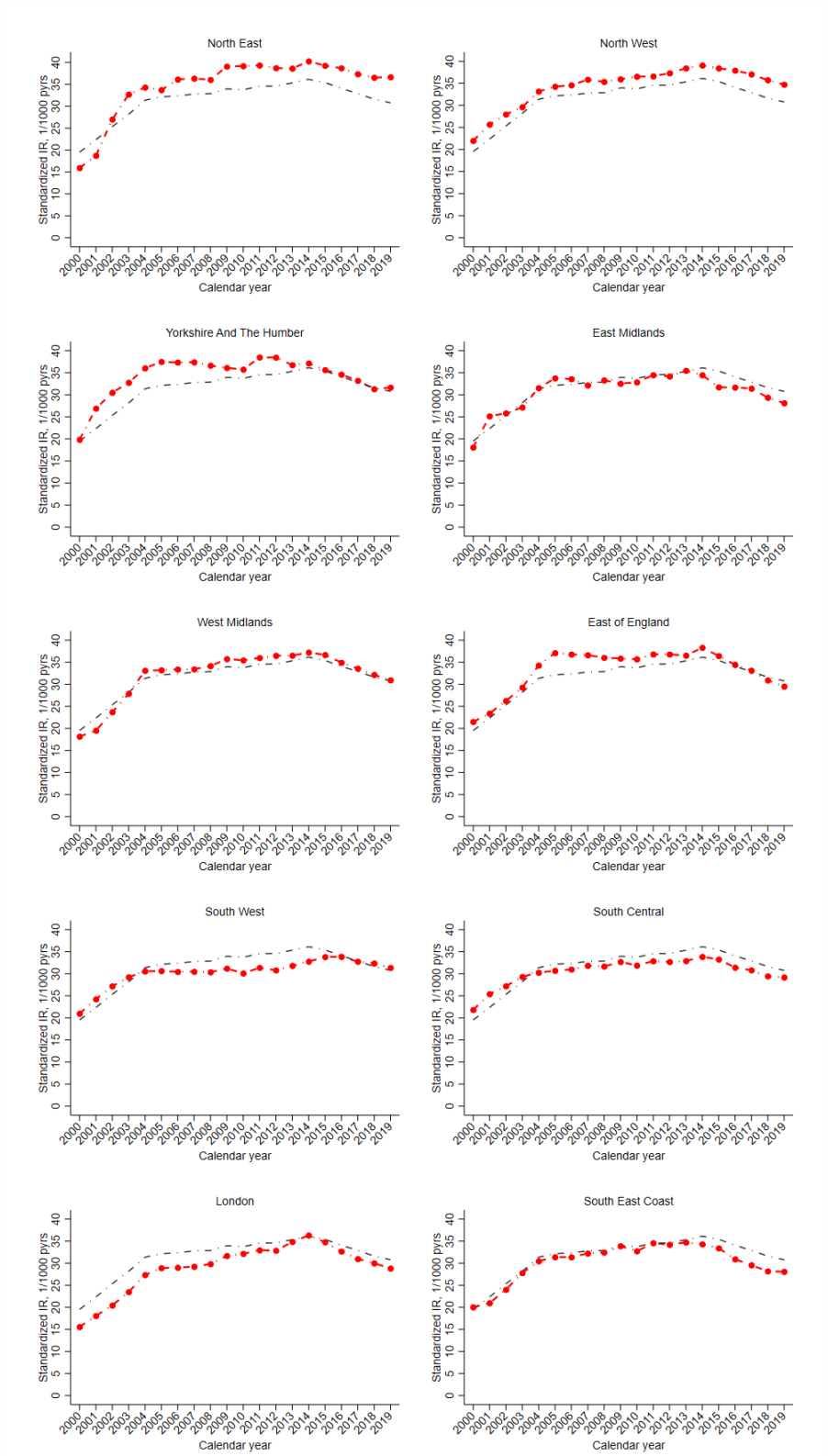


Figure S6. Annual consultation <u>prevalence</u> of <u>low back pain</u>, by region: England, 2000-2019

Data source = CPRD Aurum
Red dot line indicates the age-sex standardised consultation incidence (per 1,000 person-years) in the region. Grey line indicates the age-sex standardised consultation incidence in England.
Standard population = mid-2019 English population aged 15+ years (ONS code: E92000001)

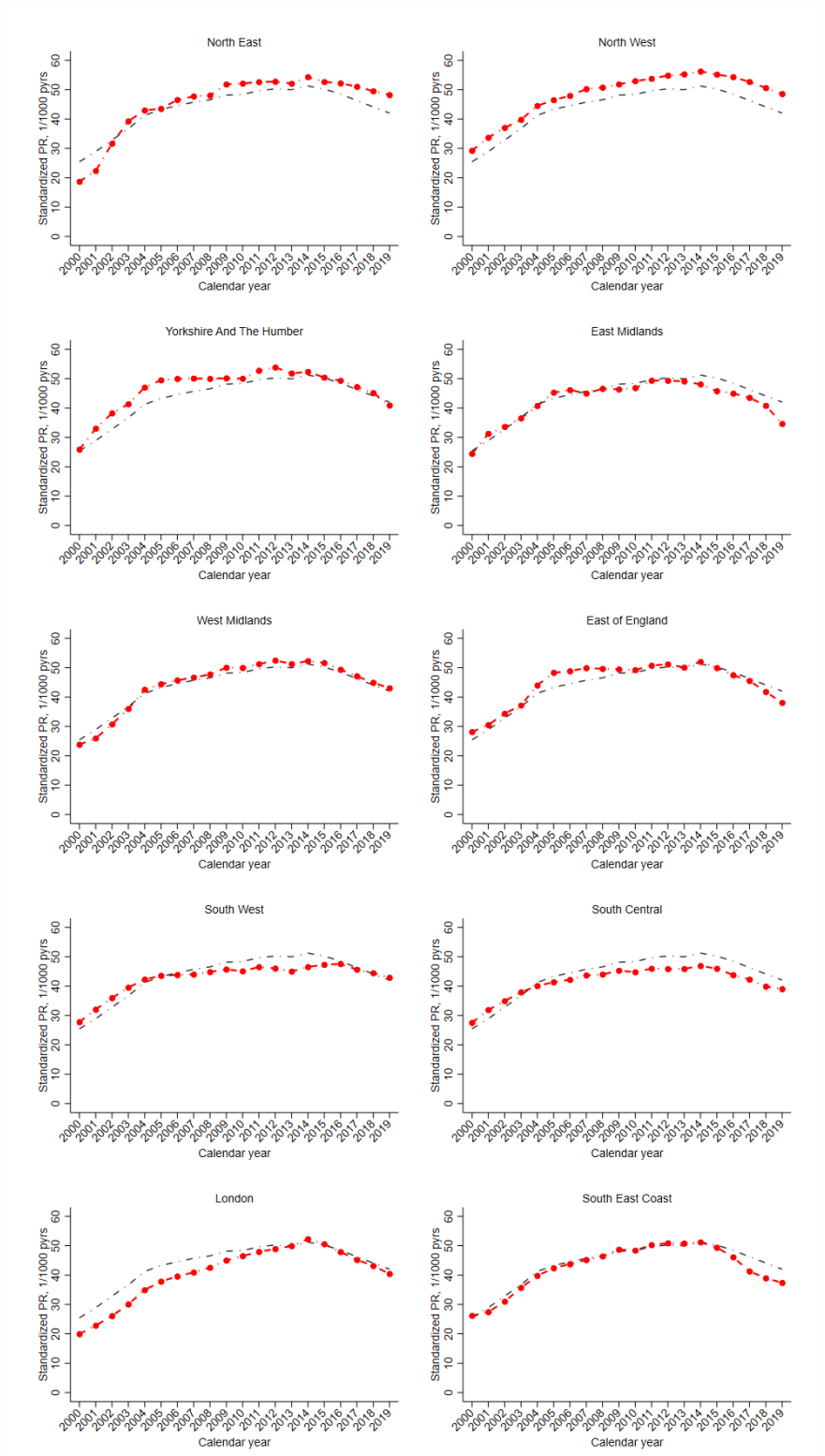


Figure S7. Age-stratified primary care annual person-consulting incidence of diagnosed osteoarthritis, by sex: England, 2000-2019

Data source = CPRD Aurum

Black dot, red square and blue diamond indicates age-standardised incidence (per 1,000 person-years) for all, women and men, respectively.

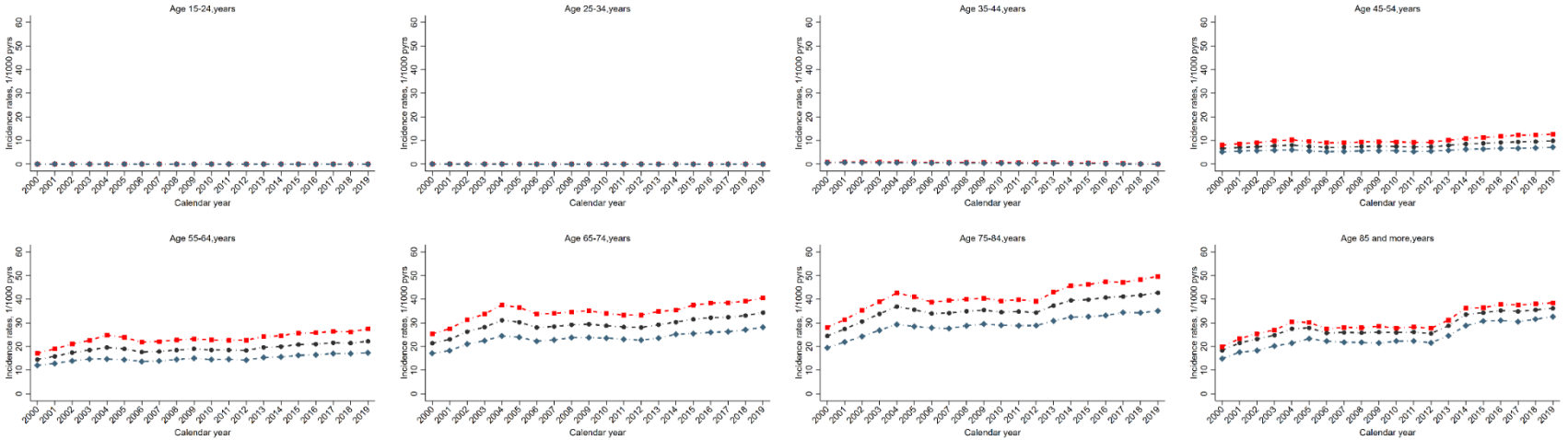


Figure S8. Age-stratified primary care annual person-consulting prevalence of diagnosed osteoarthritis, by sex: England, 2000-2019

Data source = CPRD Aurum

Black dot, red square and blue diamond indicates age-standardised prevalence (per 1,000 person-years) for all, women and men, respectively.

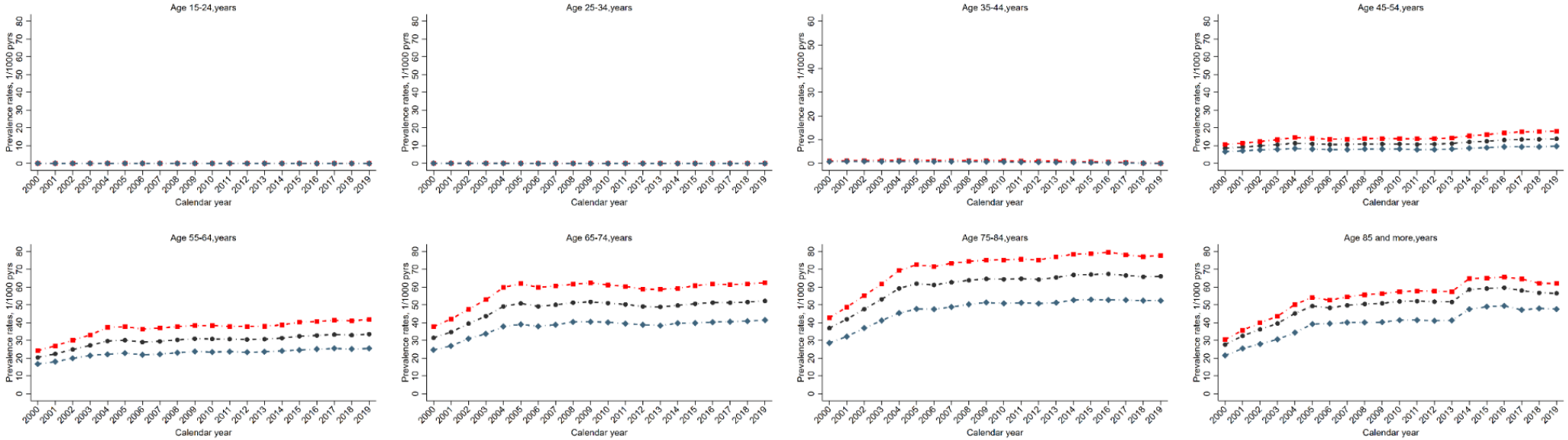


Figure S9. Annual consultation incidence of osteoarthritis, by region: England, 2000-2019

Data source = CPRD Aurum
Red dot line indicates the age-sex standardised primary care consultation incidence (per 1,000 person-years) in the region. The grey line indicated the overall age-sex standardised primary care consultation incidence in England.
Standard population = mid-2019 English population aged 15+ years (ONS code: E92000001)

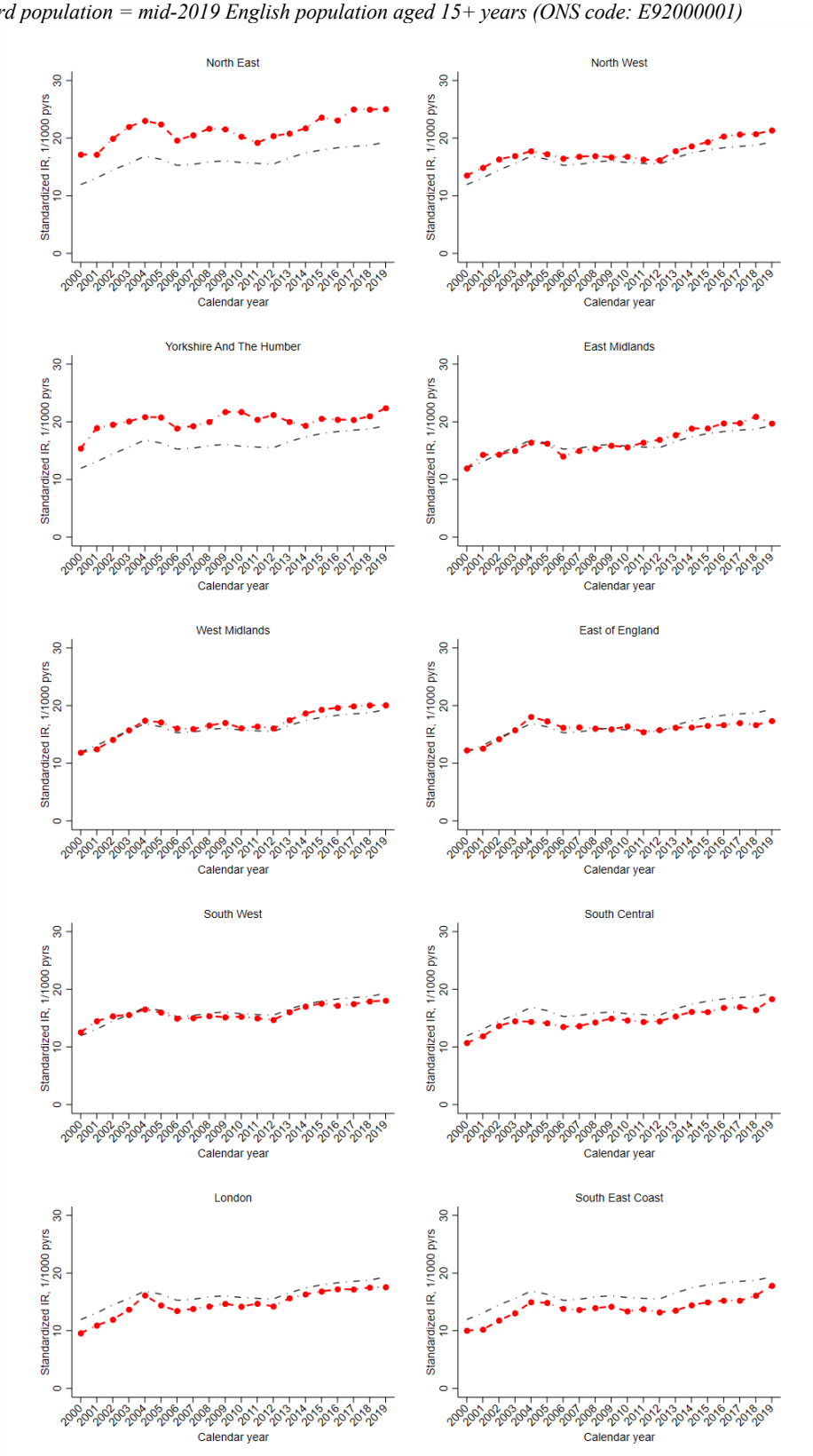


Figure S10. Annual consultation prevalence of osteoarthritis, by region: England, 2000-2019

Data source = CPRD Aurum
Red dot line indicates the age-sex standardised primary care consultation prevalence (per 1,000 person-years) in the region. The grey line indicated the overall age-sex standardised annual consultation prevalence in England.
Standard population = mid-2019 English population aged 15+ years (ONS code: E92000001)

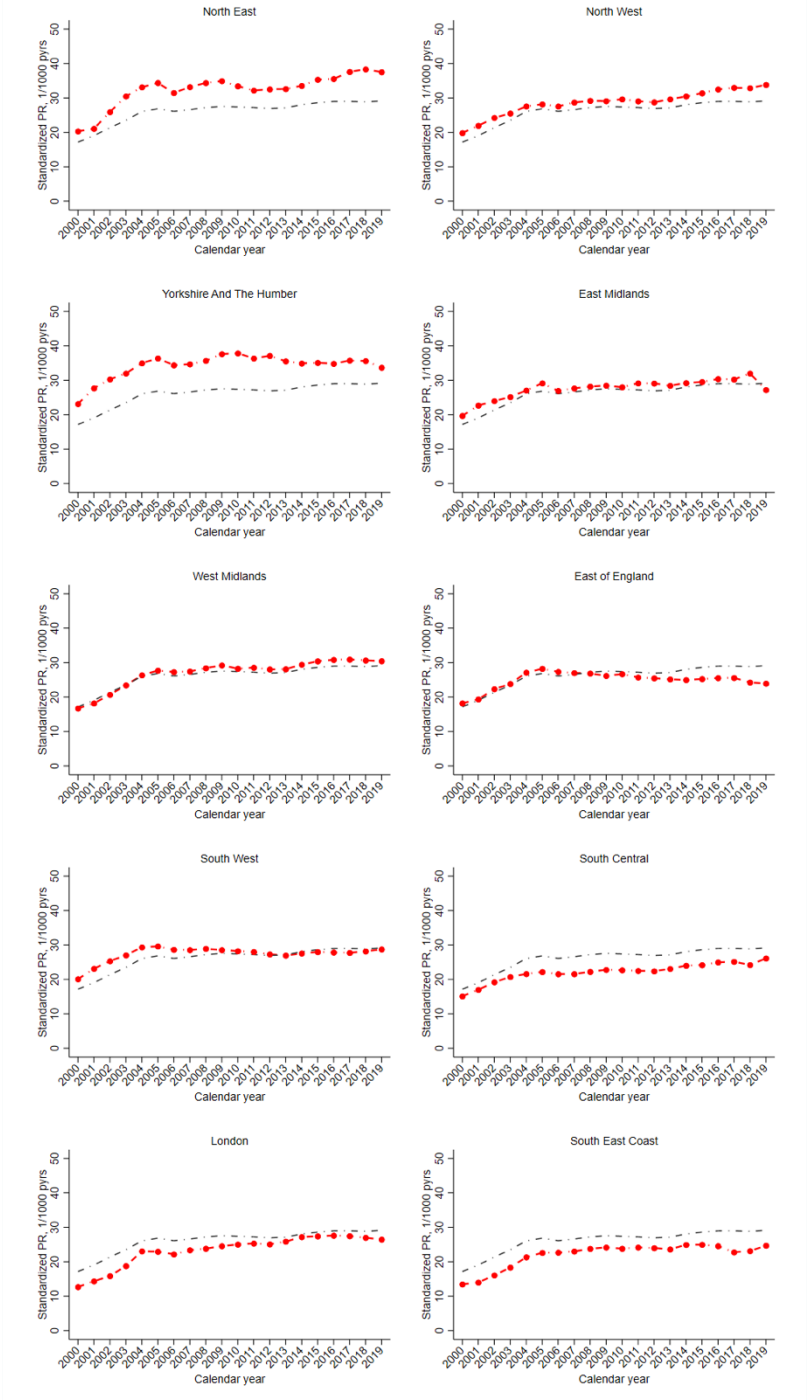


Figure S11. Annual consultation <u>prevalence</u> of <u>low back pain</u>, by sex (without requirement for 3-year prior registration history): England, 2000-2019

Data source = CPRD Aurum

Black dot, red square and blue diamond indicates age-standardised primary care consultation prevalence (per 1,000 person-years) for all, women and men, respectively.

Standard population = mid-2019 English population aged 15+ years (ONS code: E92000001)

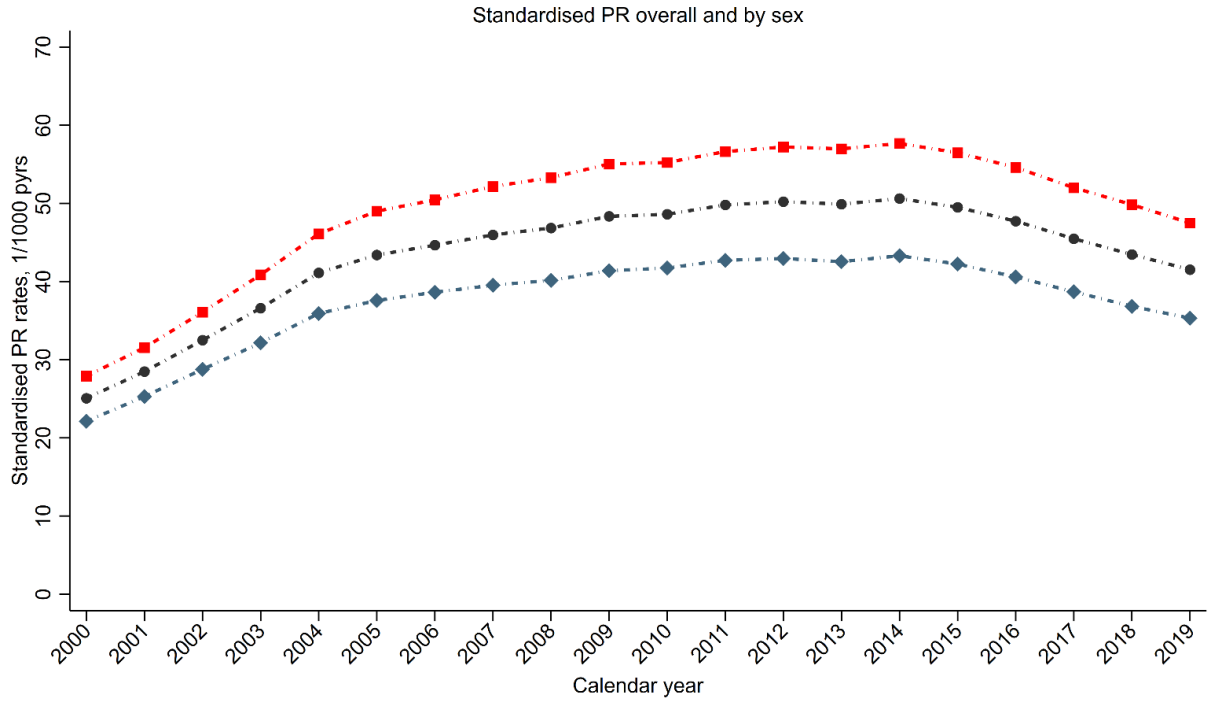


Figure S12. Age-stratified annual consultation prevalence of low back pain, by sex (without requirement for 3-year prior registration history): England, 2000-2019

Data source = CPRD Aurum

Black dot, red square and blue diamond indicates age-standardised prevalence (per 1,000 person-years) for all, women and men, respectively.

Standard population = mid-2019 English population aged 15+ years (ONS code: E92000001)

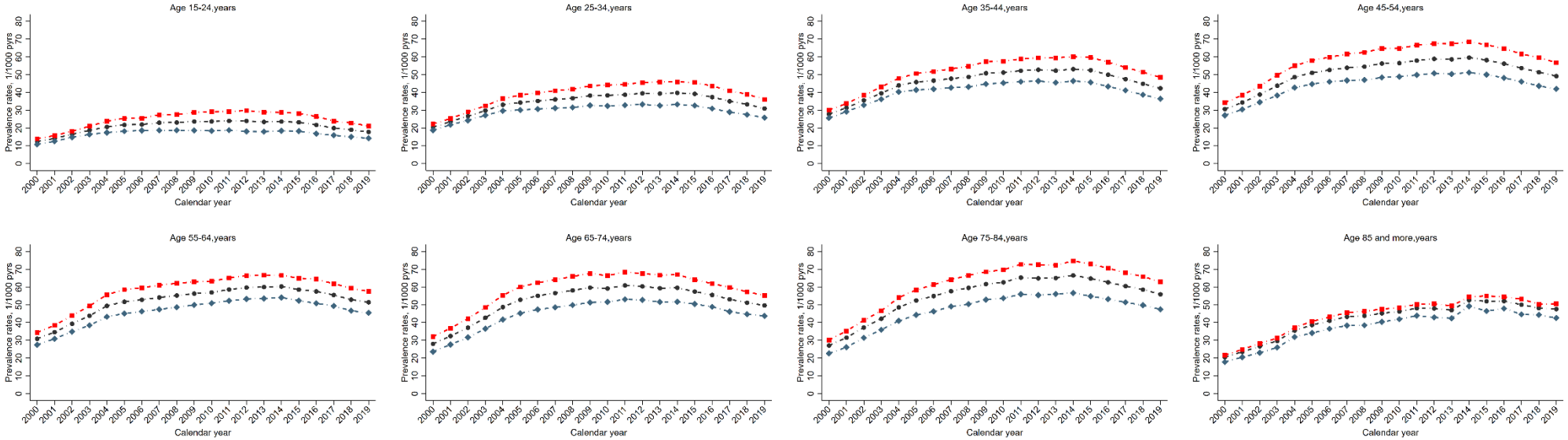


Figure S13. Annual consultation prevalence of low back pain, by region (without requirement for 3-year prior registration history): England, 2000-2019

Data source = CPRD Aurum

Red dot line indicates the age-sex standardised primary care consultation prevalence (per 1,000 person-years) in the region. The grey line indicated the overall age-sex standardised primary care consultation prevalence in England.

Standard population = mid-2019 English population aged 15+ years (ONS code: E92000001)

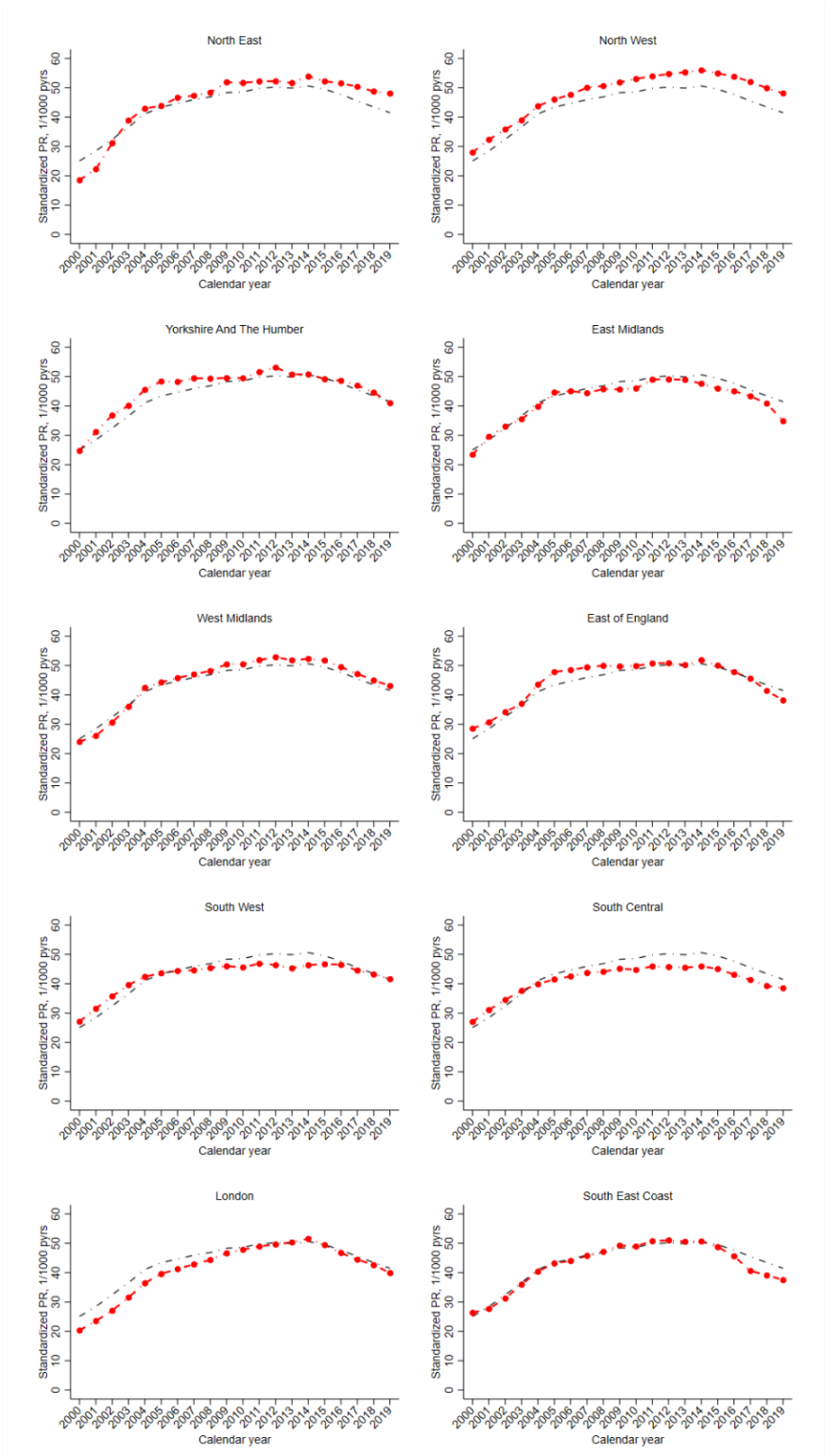


Figure S14. Annual consultation <u>prevalence</u> of <u>osteoarthritis</u>, by sex (without requirement for 3-year prior registration history): England, 2000-2019

Data source = CPRD Aurum

Black dot, red square and blue diamond indicates age-standardised primary care consultation prevalence (per 1,000 person-years) for all, women and men, respectively.

Standard population = mid-2019 English population aged 45+ years (ONS code: E92000001)

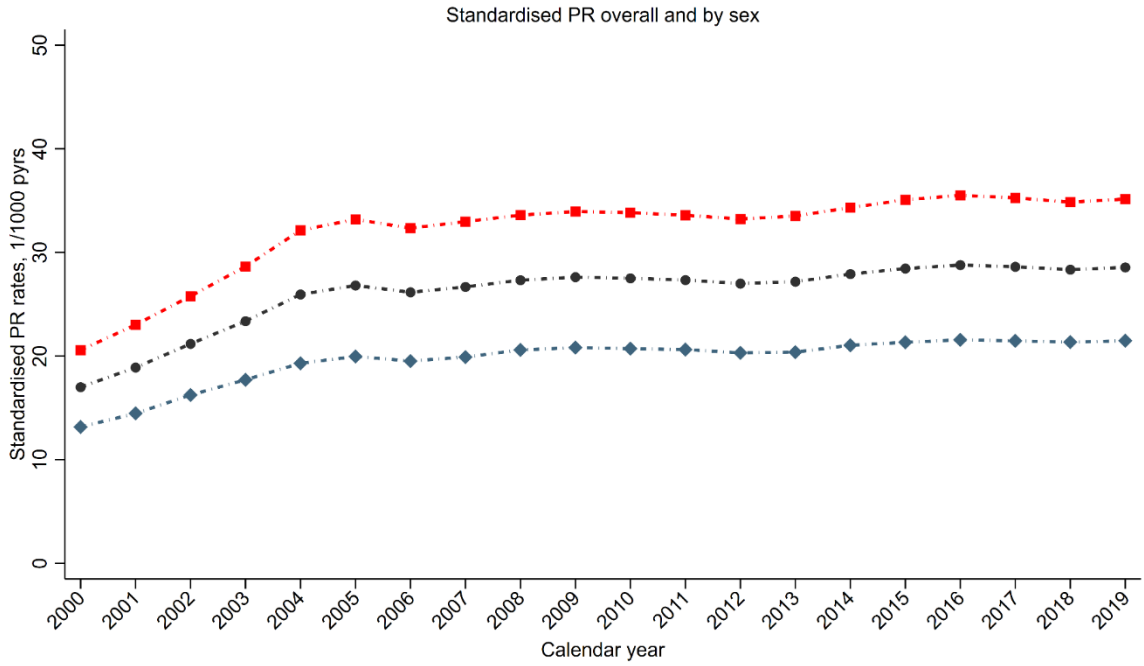


Figure S15. Age-stratified annual consultation <u>prevalence</u> of <u>osteoarthritis</u>, by sex (without requirement for 3-year prior registration history): England, 2000-2019

Data source = CPRD Aurum

Black dot, red square and blue diamond indicates age-standardised prevalence (per 1,000 person-years) for all, women and men, respectively.

Standard population = mid-2019 English population aged 45+ years (ONS code: E92000001)

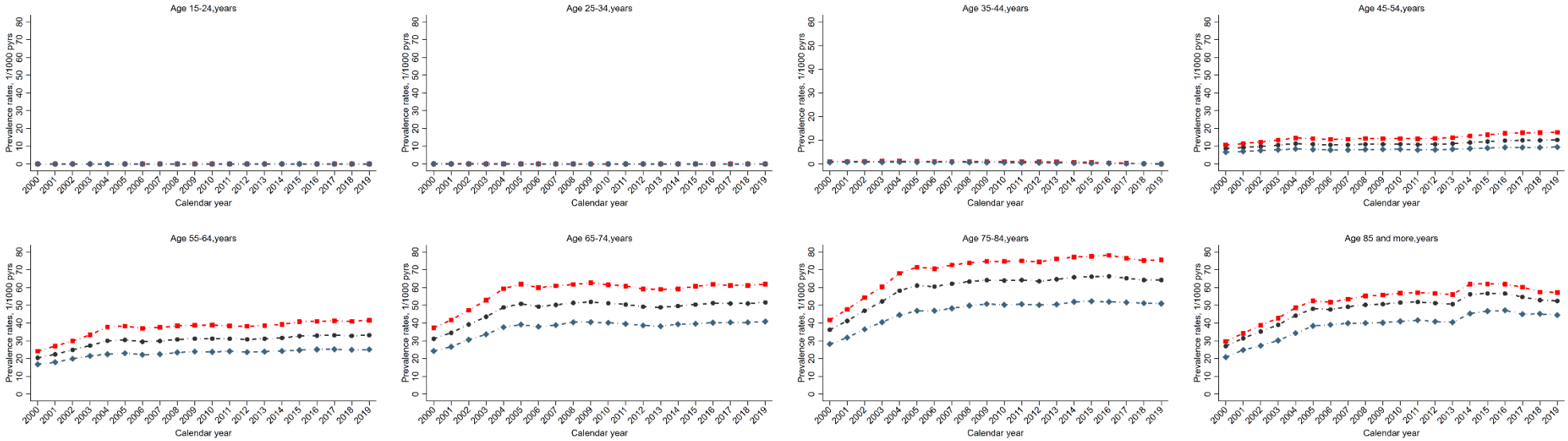


Figure S16. Annual consultation prevalence of osteoarthritis, by region (without requirement for 3-year prior registration history): England, 2000-2019

Data source = CPRD Aurum

Red dot line indicates the age-sex standardised primary care consultation prevalence (per 1,000 person-years) in the region. The grey line indicated the overall age-sex standardised primary care consultation prevalence in England. Standard population = mid-2019 English population aged 45+ years (ONS code: E92000001)

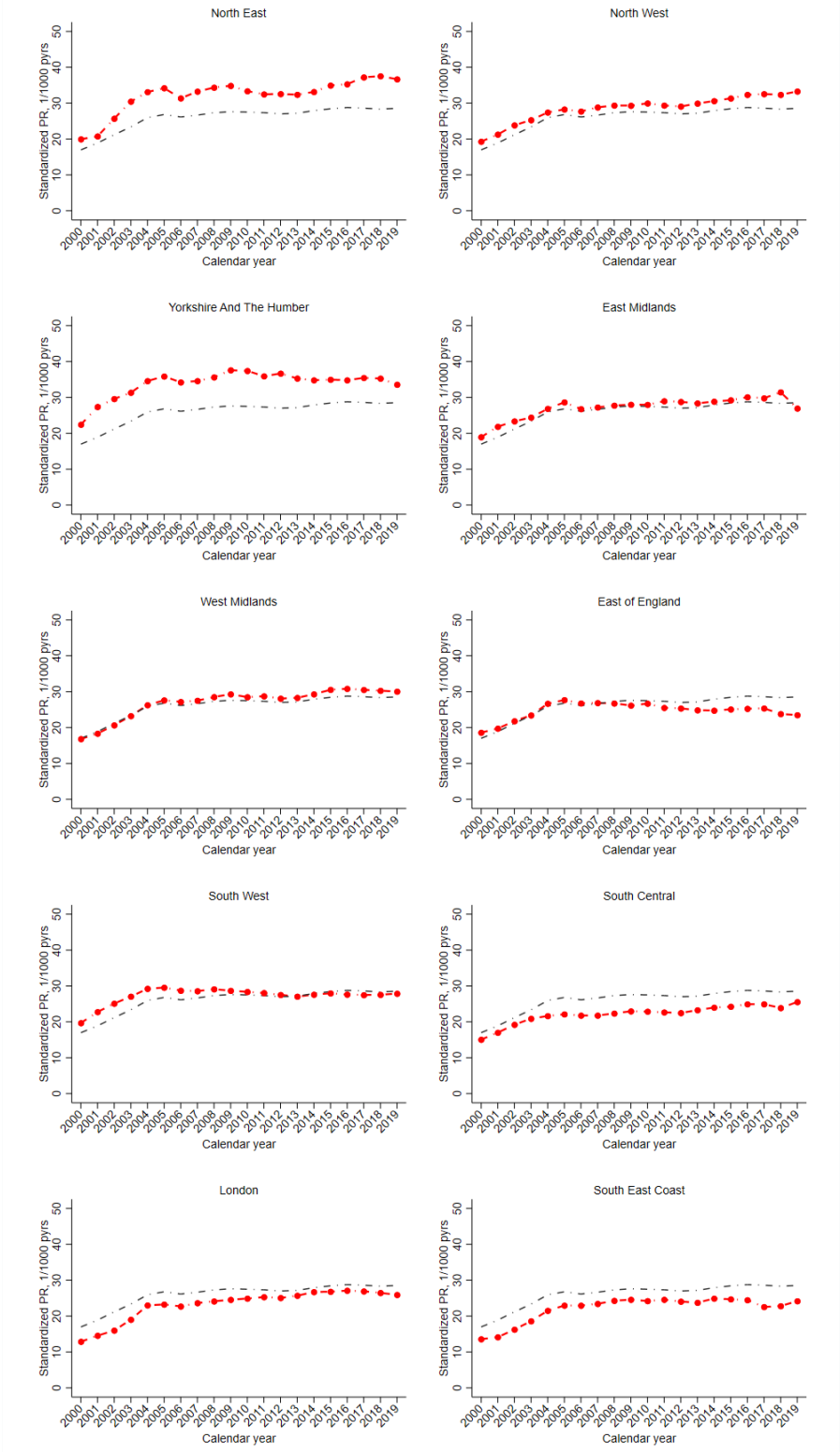
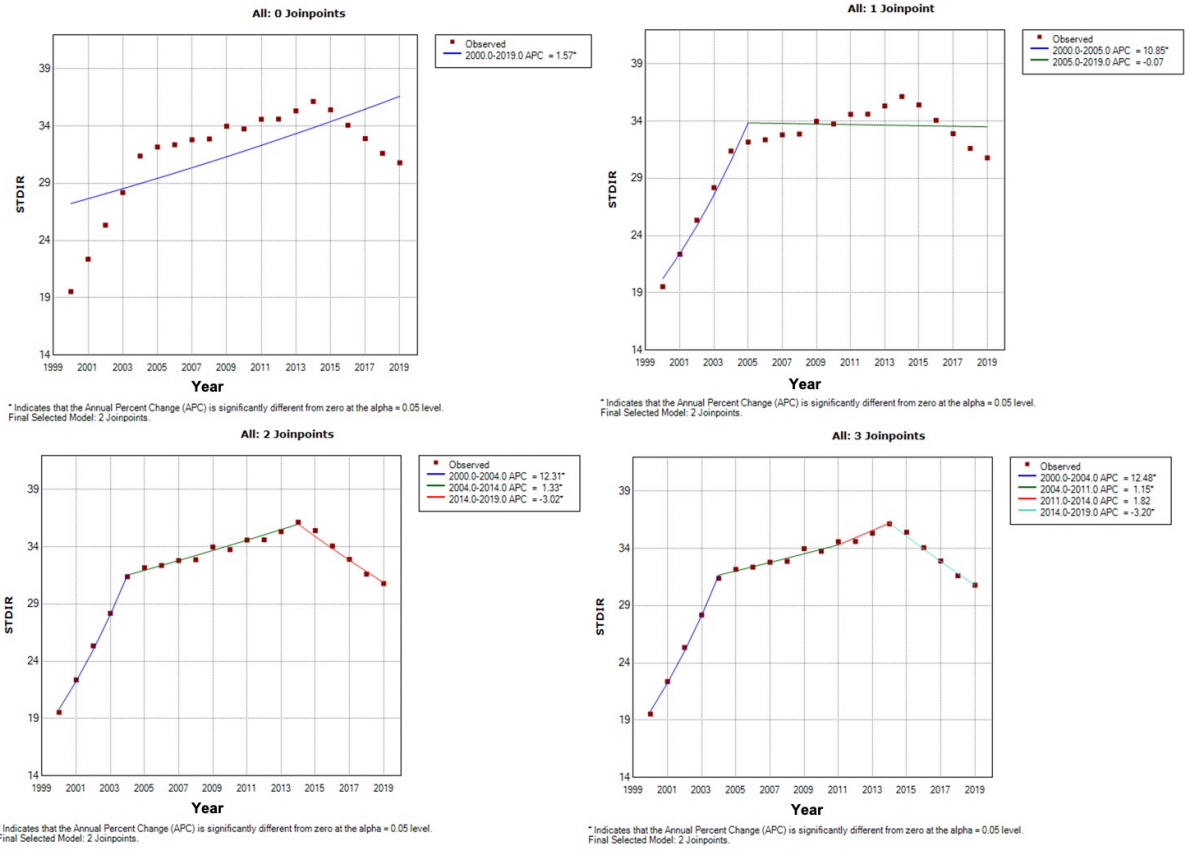
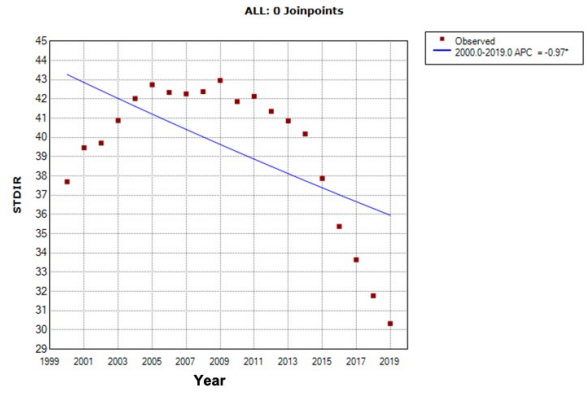


Figure S17. Joinpoint regression models for standardised incidence and prevalence of low back pain and osteoarthritis in CPRD Aurum and GOLD

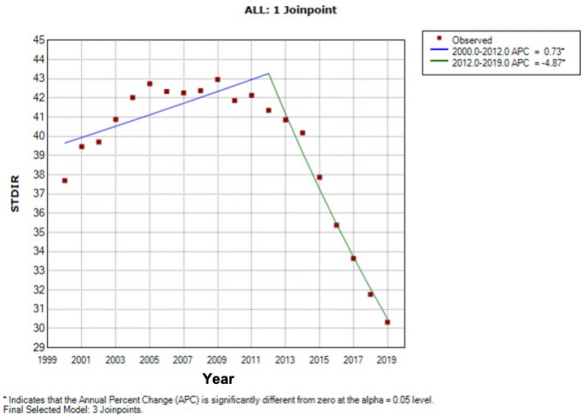
Low back pain – Incidence - Aurum



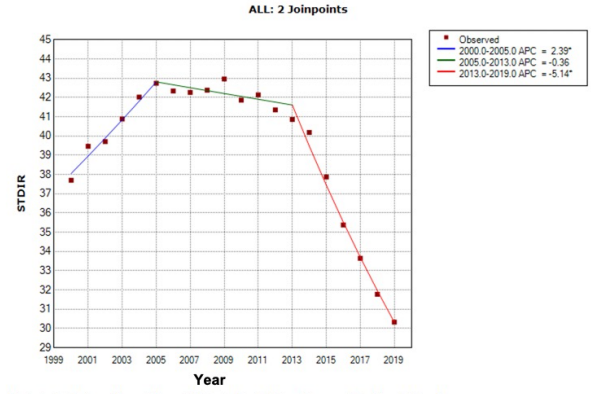
Low back pain – Incidence - GOLD



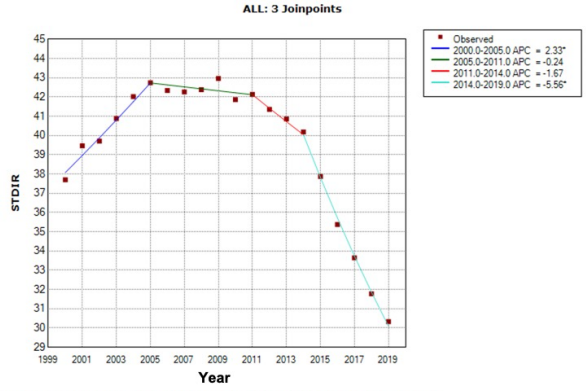
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.

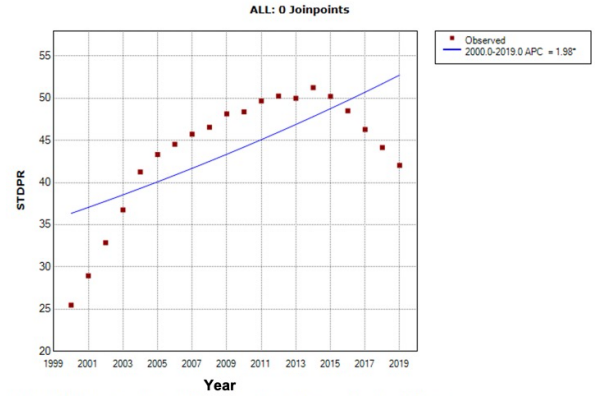


* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.

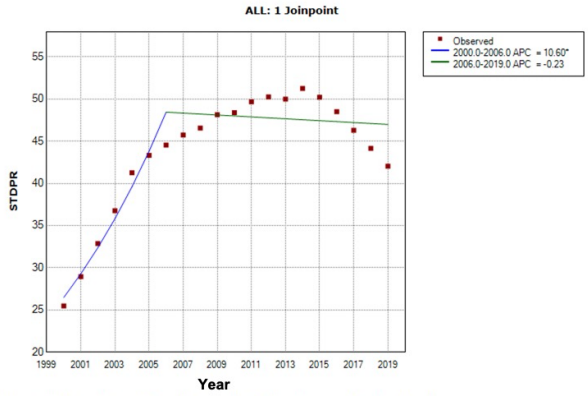


* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.

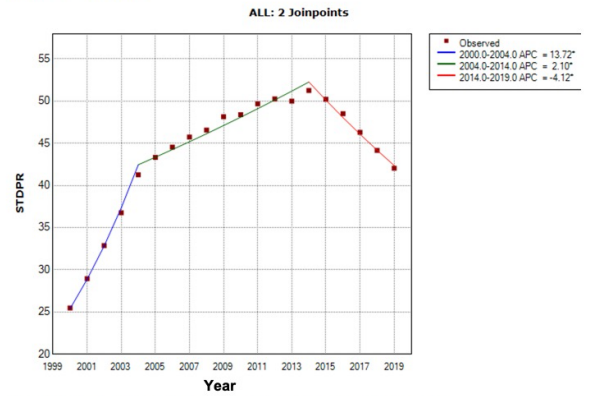
Low back pain – Prevalence - Aurum



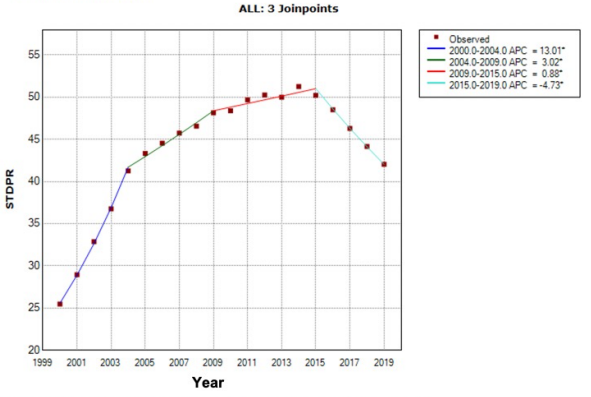
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.

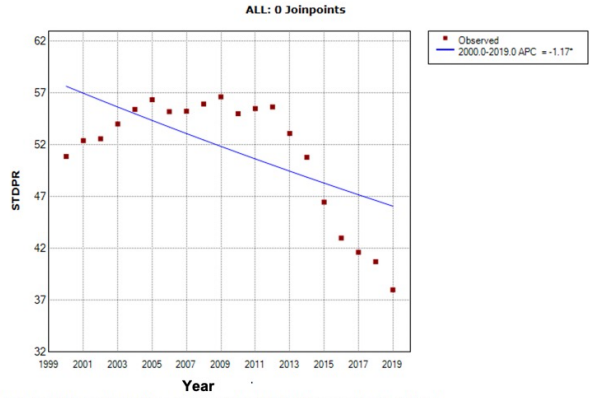


* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.

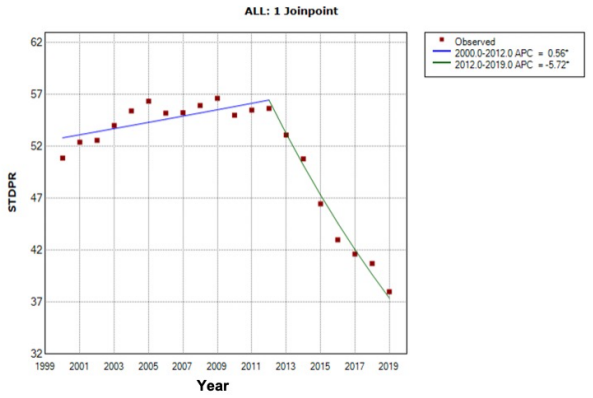


* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.

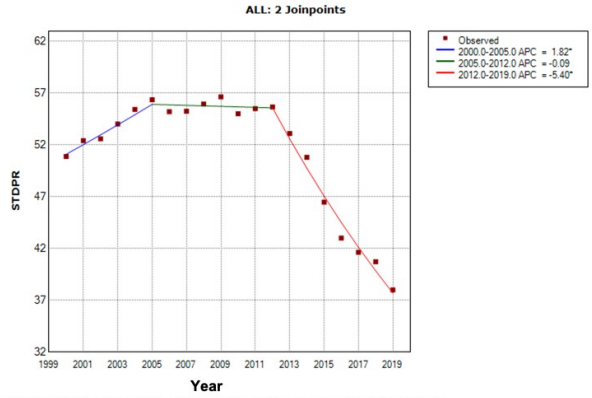
Low back pain – Prevalence - GOLD



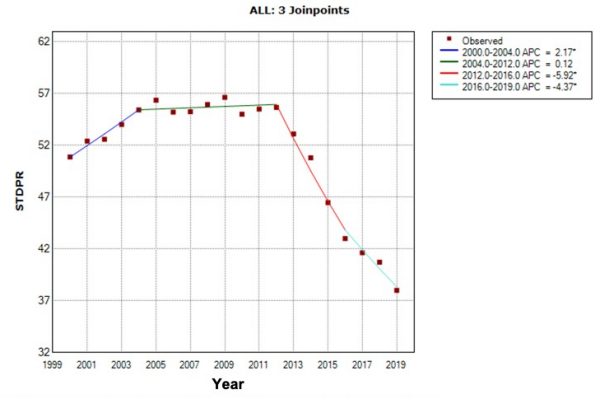
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 2 Joinpoints.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 2 Joinpoints.

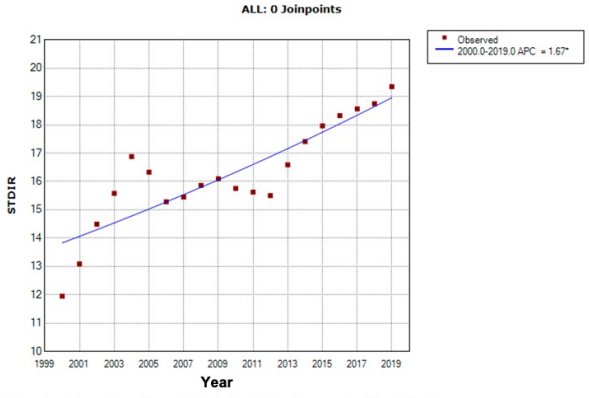


* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 2 Joinpoints.

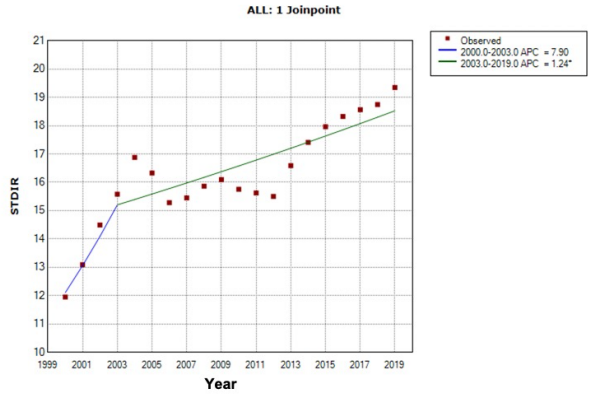


* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 2 Joinpoints.

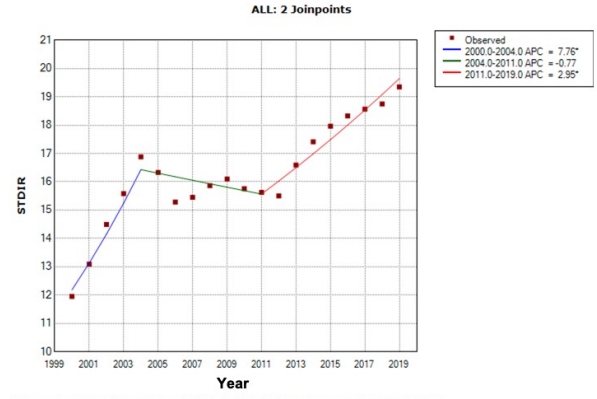
Osteoarthritis – Incidence - Aurum



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 2 Joinpoints.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 2 Joinpoints.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
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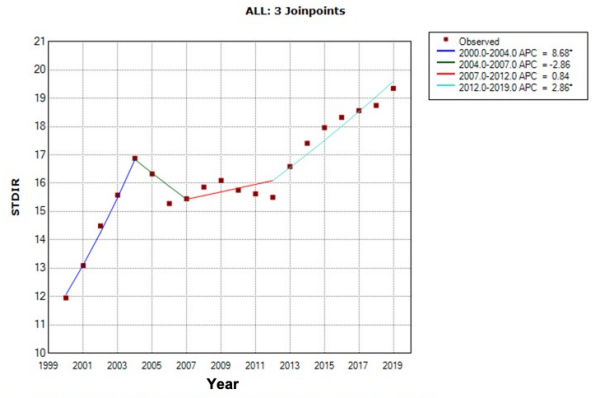
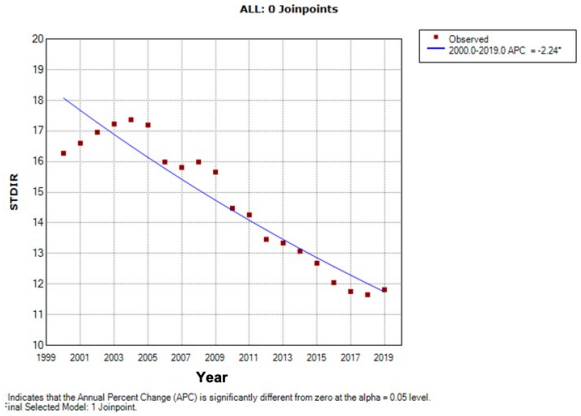
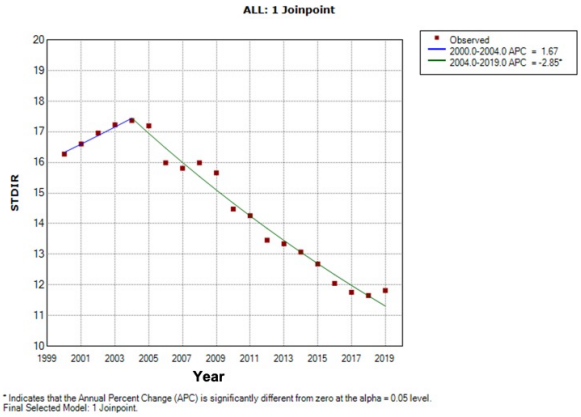
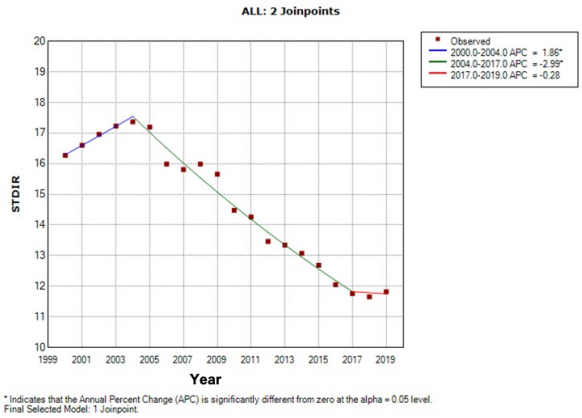


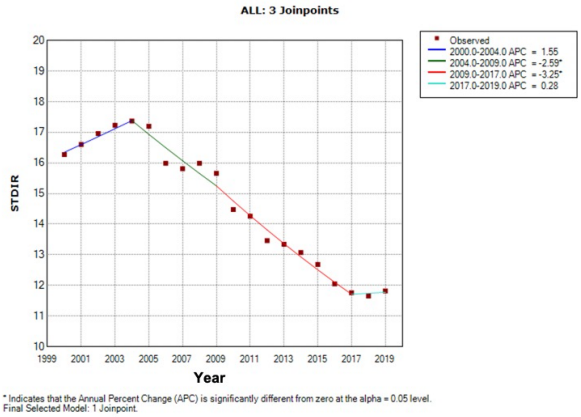
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 2 Joinpoints.

Osteoarthritis – Incidence - GOLD

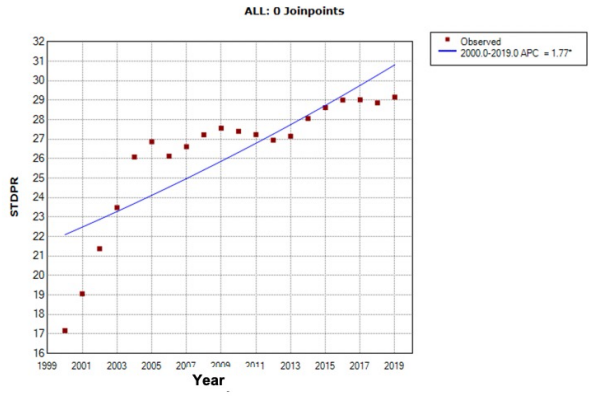




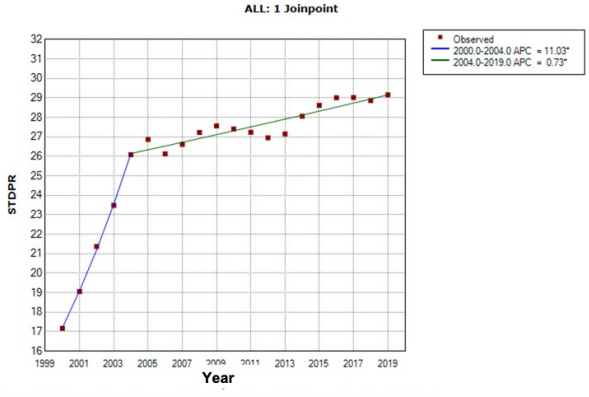




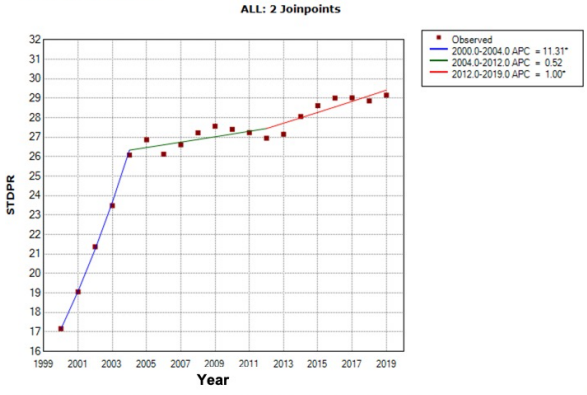
Osteoarthritis – Prevalence - Aurum



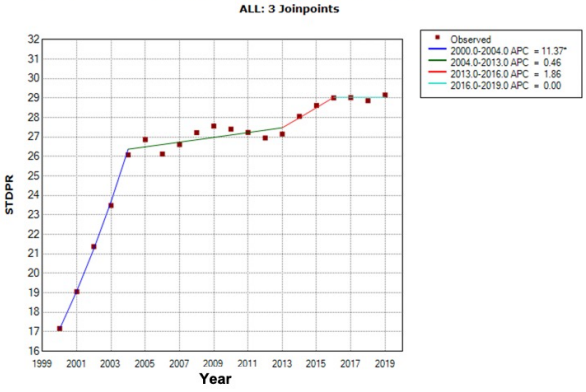
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 1 Joinpoint.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.

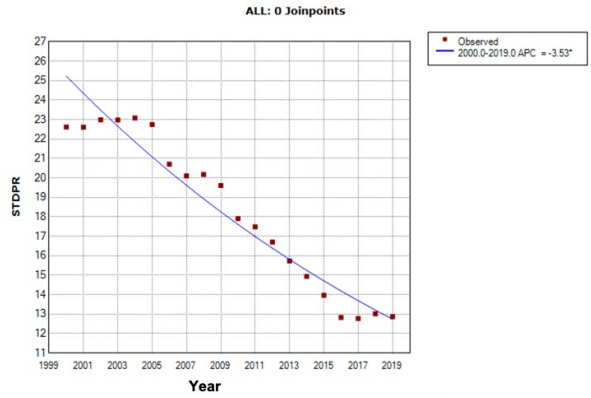


Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
inal Selected Model: 1 Joinpoint.

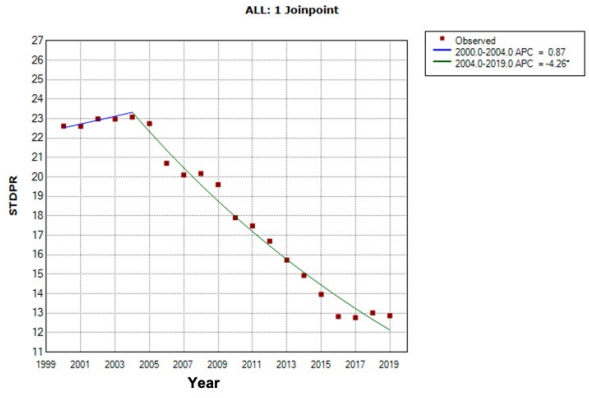


* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 1 Joinpoint.

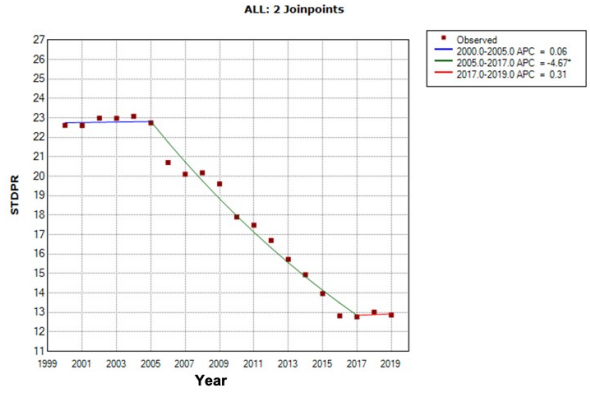
Osteoarthritis – Prevalence - GOLD



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.



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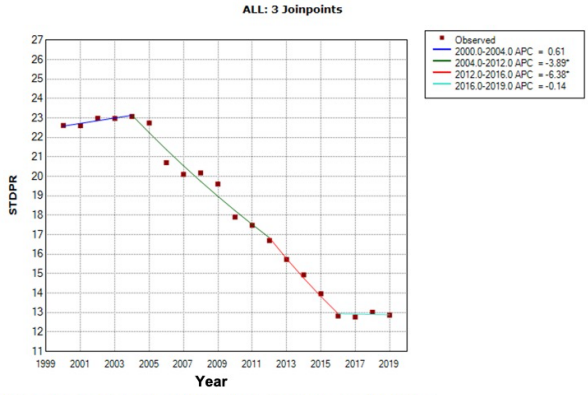

* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.