

Supplemental material

eTable 1. Definitions and classifications of rheumatoid arthritis.

	ICD code or classification number	Measurement and data source
Rheumatoid arthritis	Hospitalization: ICD-9: 714, 7140A, 7141A, 7143A, 7143B, 7143X	Diagnosed in the FCR 1987-1995
	Hospitalization or specialized healthcare outpatient visit: ICD-10: M05-M059, M06, M061	Hospitalizations 1996 onwards, specialized healthcare outpatient visits 1998 onwards
	Special reimbursement for medications: classification number 202 along with one of the abovementioned ICD-9 or ICD-10 codes	Reimbursement since 1972 in the SRR
	Hospitalization: ICD-8 codes 71200, 71210, 71238 and 71239 were used as additional information to acquire the earliest possible date for rheumatoid arthritis diagnosis provided that one of the	Diagnosed in the FCR 1972-1986

	abovementioned ICD-9 or ICD-10 codes was also present	
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Abbreviations: FCR=Finnish Care Register for Health Care; ICD=International Classification of Diseases; PR=Prescription Register; SRR=Special Reimbursement Register

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eTable 2. Definition of exposure to disease-modifying anti-rheumatic drugs (DMARDs) and corticosteroids.

Drug substance or class	Drug substance	ATC code	Recorded in the Prescription register
Sulfasalazine		A07EC01	Since 1995
Methotrexate		L04AX03	Since 1995
Chlororoquine/	Chloroquine	P01BA01	1995-2003
hydroxychloroquine	Hydroxychloroquine	P01BA02	Since 1995
Gold preparations	Sodium aurothiomalate	M01CB01	Since 1995
	Auranofin	M01CB03	1995-2012
Immunosuppressants	Mycophenolic acid	L04AA06	Since 1998
	Leflunomide	L04AA13	Since 2000
	Ciclosporin	L04AD01	Since 1995
	Azathioprine	L04AX01	Since 1995
	bDMARDs:		
	Abatacept	L04AA24	Since 2013
	Etanercept	L04AB01	Since 2003
	Adalimumab	L04AB04	Since 2004
	Certolizumab pegol	L04AB05	Since 2010
	Golimumab	L04AB06	Since 2010
	Anakinra	L04AC03	Since 2004
Corticosteroids	Methylprednisolone	H02AB04	Since 1995
	Prednisolone	H02AB06	Since 1995

	Prednisone	H02AB07	Since 1995
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Abbreviations: ATC=Anatomical Therapeutic Chemical; bDMARDs=biological disease-modifying anti-rheumatic drugs

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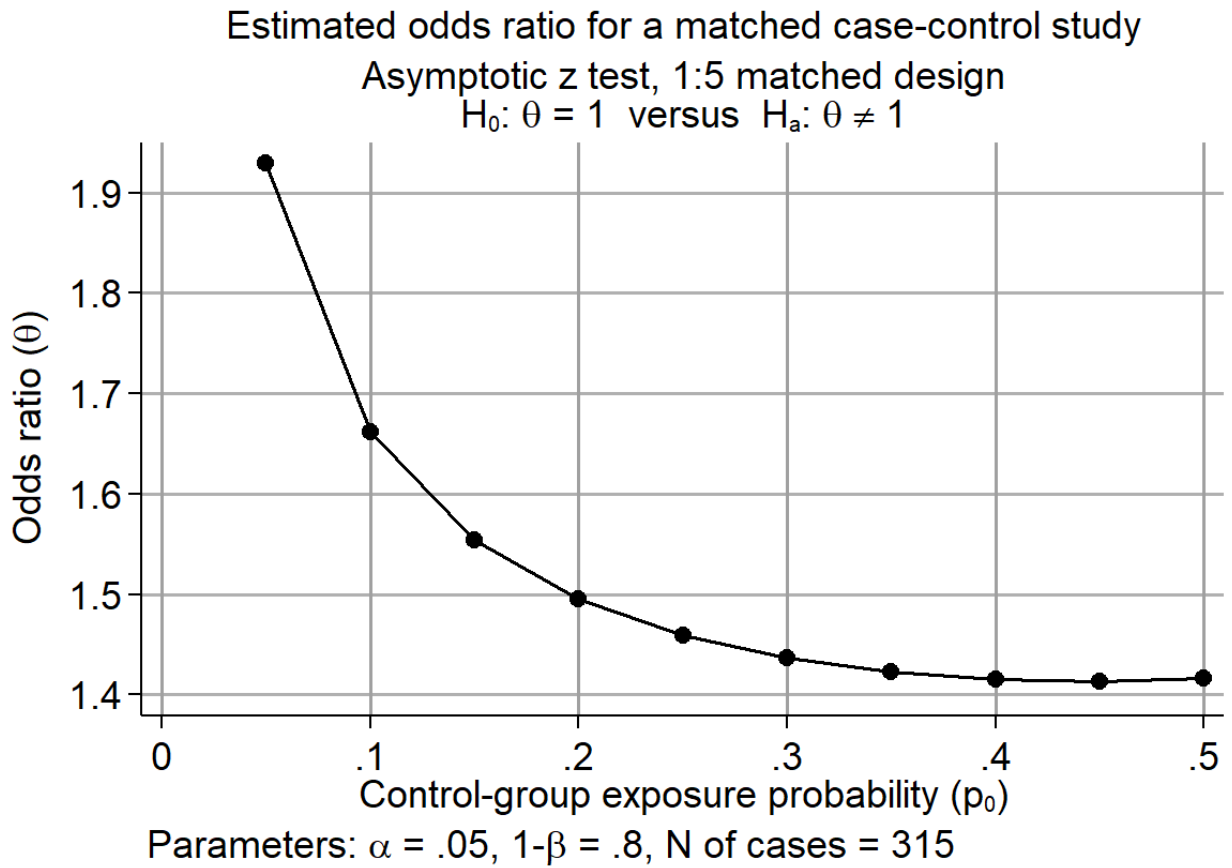
eTable 3. Definitions and classifications of covariates.

Covariate	ATC code, ICD code or classification number	Measurement and data source
Asthma or COPD	Hospitalization ICD-8: 493 ICD-9: 493, 4912A, 4960A ICD-10: J44–J46 Special reimbursement for medications: classification number 203	Diagnosed in the FCR ICD-8: 1972-1986 ICD-9: 1987-1995 ICD-10: hospitalizations 1996 onwards, specialized healthcare outpatient visits 1998 onwards Reimbursement since 1972 in the SRR
Cancer history	Hospitalization ICD-10 code from IARC CRG Tools: C00-C97	Diagnosed since 1972 in the Cancer Register
Cardiovascular diseases	Special reimbursement for medications: classification numbers 201, 205, 206, 207, 213, 280	Reimbursement since 1972 in the SRR

<p>Diabetes</p>	<p>Hospitalization</p> <p>ICD-8: 250, 25101</p> <p>ICD-9: 250, 2510, 2518</p> <p>ICD-10: E10–E14</p> <p>Special reimbursement for medications: classification number 103</p>	<p>Diagnosed in the FCR</p> <p>ICD-8: 1972-1986</p> <p>ICD-9: 1987-1995</p> <p>ICD-10: hospitalizations 1996 onwards, specialized healthcare outpatient visits 1998 onwards</p> <p>Reimbursement since 1972 in the SRR</p>
<p>Head injury</p>	<p>Hospitalization</p> <p>ICD-8: 800–804, 830, 850–854, 870–873, 904, 906, 910, 920, 921, 950, 951</p> <p>ICD-9: 800–803, 830, 8480, 850–854, 870–873, 918, 920, 921, 9250, 9251, 950, 951, 9590</p> <p>ICD-10: S00–S09</p>	<p>Diagnosed in the FCR</p> <p>ICD-8: 1972-1986</p> <p>ICD-9: 1987-1995</p> <p>ICD-10: hospitalizations 1996 onwards, specialized healthcare outpatient visits 1998 onwards</p>
<p>Stroke</p>	<p>Hospitalization</p> <p>ICD-8: 430-434</p> <p>ICD-9: 430–432</p> <p>ICD-10: I60-I64</p>	<p>Diagnosed in the FCR</p> <p>ICD-8: 1972-1986</p> <p>ICD-9: 1987-1995</p>

		ICD-10: hospitalizations 1996 onwards, specialized healthcare outpatient visits 1998 onwards
Substance abuse	<p>Hospitalization</p> <p>ICD-8: 291, 3031, 3032, 3039, 980</p> <p>ICD-9: 291, 292, 303-305, 980, 3575, 3594, 4255, 5353, 7903, 5710A, 5711A, 5712A, 5713A, 5713X, 5771C, 5771D</p> <p>ICD-10: F10-F19, G31.2, G62.1, G72.1, I42.6, K29.2, K70, K86.0, R78.0, T51.0, T51.1, T51.9, X45</p> <p>Reason for admission: codes 33, 71–75</p> <p>Medication used in alcohol or opioid dependence (ATC code: N07BB, N07BC)</p>	<p>Diagnosed in the FCR</p> <p>ICD-8: 1972-1986</p> <p>ICD-9: 1987-1995</p> <p>ICD-10: hospitalizations 1996 onwards, specialized healthcare outpatient visits 1998 onwards</p> <p>Since 1993</p> <p>Medication use since 1995 in the PR</p>

Abbreviations: ATC=Anatomical Therapeutic Chemical; COPD=chronic obstructive pulmonary disease; FCR=Finnish Care Register for Health Care; IARC CRG=International Agency for Research on Cancer Cancer Collaborative Research Group; ICD=International Classification of Diseases; PD=Parkinson's disease; PR=Prescription Register; SRR=Special Reimbursement Register



eFigure 1: Detectable odds ratios with 80% power, $\alpha=0.05$ for our case-control study of 315 cases and five matched controls per case with exposure level of controls ranging between 5-50%. Up to seven controls per case were included but the average number of controls per case was five.