

## SUPPLEMENTARY

### Sarcoidosis mortality in Sweden: a population-based cohort study

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**Table E1.** ICD-10 codes used to identify comorbidities in the National Patient Register and weights used to calculate the Charlson Comorbidity Index score.

Comorbidity	ICD-10 codes*	Weight
Myocardial infarction	I21–I22, I25.2	1
Congestive heart failure	I09.9, I11.0, I13.0, I13.2, I25.5, I42.0, I42.5–I42.9, I43, I50, P29.0	1
Peripheral vascular disease	I70–I71, I73.1, I73.8, I73.9, I77.1, I79.0, I79.2, K55.1, K55.8–K55.9, Z95.8–Z95.9	1
Cerebrovascular disease	G45–G46, H34.0, I60–I69	1
Dementia	F00–F03, F05.1, G30, G31.1	1
Chronic pulmonary disease	I27.8, I27.9, J40–J47, J60–J67, J68.4, J70.1, J70.3	1
Rheumatic disease	M05–M06, M31.5, M32–M34, M35.1, M35.3, M36.0	1
Peptic ulcer disease	K25–K28	1
Mild liver disease	B18, K70.0–K70.3, K70.9, K71.3–K71.5, K71.7, K73–K74, K76.0, K76.2–K76.4, K76.8–K76.9, Z94.4	1
Diabetes without chronic complications	E10.0–E10.1, E10.6, E10.8–E10.9, E11.0–E11.1, E11.6, E11.8–E11.9, E12.0–E12.1, E12.6, E12.8–E12.9, E13.0–E13.1, E13.6, E13.8–E13.9, E14.0–E14.1, E14.6, E14.8–E14.9	1
Diabetes with chronic complications	E10.2–E10.5, E10.7, E11.2–E11.5, E11.7, E12.2–E12.5, E12.7, E13.2–E13.5, E13.7, E14.2–E14.5, E14.7	2
Hemiplegia or paraplegia	G04.1, G11.4, G80.1, G80.2, G81–G82, G83.0–G83.4, G83.9	2
Renal disease	I12.0, I13.1, N03.2–N03.7, N05.2–N05.7, N18–N19, N25.0, Z49.0–Z49.2, Z94.0, Z99.2	2
Any malignancy, including lymphoma and leukaemia, except malignant skin neoplasms	C00–C26, C30–C34, C37–C41, C43, C45–C58, C60–C76, C81–C85, C88, C90–C97	2
Moderate or severe liver disease	I85.0, I85.9, I86.4, I98.2, K70.4, K71.1, K72.1, K72.9, K76.5, K76.6, K76.7	3
Metastatic solid tumour	C77–C80	6
AIDS/HIV infection	B20–B22, B24	6

\* The Swedish version of the ICD-10 classification system came into effect in 1997.

The codes were taken from Quan *et al.*, 2005, *Med Care*, and the weights from Charlson *et al.*, 1987, *J Chronic Dis*.

**Table E2.** Distributions of bias parameters used in probabilistic bias analyses.

<b>Bias parameter</b>	<b>Type of distribution</b>	<b>Minimum</b>	<b>Lower mode</b>	<b>Upper mode</b>	<b>Maximum</b>
Unmeasured confounding by smoking					
Prevalence in sarcoidosis	Trapezoidal	0.09	0.10	0.15	0.16
Prevalence in controls	Trapezoidal	0.10	0.11	0.16	0.17
Additive prevalence in all-cause death due to smoking*	Uniform	0.12	NA	NA	0.16
Sarcoidosis definition misclassification					
Positive predictive value	Uniform	0.50	NA	NA	0.70
Negative predictive value	Uniform	0.98	NA	NA	100.0

NA = not applicable.

Data are proportions.

\* Corresponds to a relative risk of all-cause death due to smoking of 2.60.

**Table E3.** Baseline characteristics of individuals with sarcoidosis who received treatment or not at diagnosis and their matched general population comparators entering the cohort after Oct 1, 2005.

	<b>Sarcoidosis, treated* (n=2599)</b>	<b>Sarcoidosis, not treated* (n=3592)</b>	<b>General population (n=61217)</b>
Mean age at inclusion (SD), years	49.8 (14.8)	49.8 (14.2)	49.8 (14.4)
Sex, n (%)			
Female	1087 (42)	1634 (45)	26938 (44)
Male	1512 (58)	1958 (55)	34279 (56)
Region of residence, n (%)			
Northern Sweden	342 (13)	518 (14)	8539 (14)
Middle Sweden	915 (35)	1548 (43)	24253 (40)
Southern Sweden	1342 (52)	1526 (42)	28425 (46)
Country of birth, n (%)			
Nordic	2360 (91)	3195 (89)	53380 (88)
Non-Nordic	239 (9)	397 (11)	7837 (13)
Years of education, n (%)			
≤9	532 (20)	659 (18)	11933 (19)
10–12	1353 (52)	1752 (49)	28312 (46)
≥13	695 (27)	1136 (32)	20243 (33)
Missing	19 (1)	45 (1)	729 (1)
Mean Charlson Comorbidity Index score (SD)	0.26 (0.82)	0.26 (0.95)	0.14 (0.62)

\* Defined as the dispensation of at least one prescription for oral corticosteroids, methotrexate, or azathioprine in the Prescribed Drug Register, three months before and after the first sarcoidosis visit.

**Table E4.** Ten most common underlying or contributory causes of death in individuals with sarcoidosis and their corresponding proportions in the general population comparators group.

ICD-10			Sarcoidosis (n=445)	General population (n=2606)
No.	code	Disease/disorder's name		
<b>Underlying causes of death</b>				
1	D86	Sarcoidosis	10.3	0.0
2	I21	Acute myocardial infarction	8.1	8.1
3	I25	Chronic ischemic heart disease	4.7	6.4
4	C34	Malignant neoplasm of bronchus and lung	4.3	5.3
5	C18	Malignant neoplasm of colon	2.9	3.1
6	C56	Malignant neoplasm of ovary	2.9	1.4
7	C25	Malignant neoplasm of pancreas	2.7	2.6
8	E14	Unspecified diabetes mellitus	2.7	1.4
9	J84	Other interstitial pulmonary diseases	2.5	0.7
10	C50	Malignant neoplasm of breast	2.3	3.4
<b>Contributory causes of death</b>				
1	D86	Sarcoidosis	30.1	0.0
2	I50	Heart failure	20.0	16.1
3	C79	Secondary malignant neoplasm of other and unspecified sites	12.4	12.7
4	I25	Chronic ischemic heart disease	12.4	13.7
5	E14	Unspecified diabetes mellitus	11.5	6.5
6	I21	Acute myocardial infarction	10.6	10.0
7	J18	Pneumonia, organism unspecified	10.3	8.3
8	I46	Cardiac arrest	8.8	6.9
9	I10	Essential (primary) hypertension	8.5	9.5
10	J84	Other interstitial pulmonary diseases	7.2	1.0

Data are percentage of total number of deaths.

**Table E5.** All-cause mortality in individuals with sarcoidosis compared to matched general population comparators entering the cohort Oct 1, 2005, overall and stratified by the receipt of treatment at diagnosis.

<b>Analysis</b>	<b>n</b>	<b>Deaths/ person-years</b>	<b>Hazard ratio (95% CI)*</b>
<b>Overall</b>			
Sarcoidosis	6547	370/31377	1.64 (1.46–1.83)
General population	64691	2158/314493	1.00 [Reference]
<b>Treated at diagnosis†</b>			
Sarcoidosis, treated	2599	183/11908	2.34 (1.99–2.75)
General population	25726	826/121293	1.00 [Reference]
<b>Not treated at diagnosis</b>			
Sarcoidosis, not treated	3592	136/16704	1.13 (0.94–1.35)
General population	35491	1033/165286	1.00 [Reference]

\* Estimated by Cox models adjusted for age, sex, and region of residence, country of birth, education, and comorbidity (Charlson Index score).

† Defined as the dispensation of at least one prescription for oral corticosteroids, methotrexate, or azathioprine in the Prescribed Drug Register, three months before and after the first sarcoidosis visit.