

# Prevalence and geographic distribution of sarcoidosis in Switzerland

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**Introduction:** The reported prevalence of sarcoidosis varies considerably in different countries and studies. Typically, it is estimated at 1-40 per 100'000 inhabitants. The aim of the current study was to investigate the prevalence and regional distribution of sarcoidosis in Switzerland. Furthermore, we studied correlations between the regional prevalence of sarcoidosis and measures of air quality, regional importance of agriculture, metal or other industries.

**Methods:** Cases with sarcoidosis were identified from the hospital statistics (Federal Office for Statistics, Years 2002-2005). The prevalence resulting from this in-patient data pool was adjusted with the aid of the incidence of newly diagnosed sarcoidosis from biopsy results in the City of Basel (in- and out-patients; Pathology, University Hospital Basel). Regional exposure characteristics included air quality measurements (MeteoSwiss, PM10, Year 2002), and regional distribution of different industrial sectors focusing on agriculture and metal industry (Federal Office for Statistics, NOGA, Year 2005). The geographic resolution is defined by postal codes (Swiss Post). For the probability distribution generalized linear models with the Poisson's distribution were used. Each exposure co-variable was individually tested for significance to the number of sarcoidosis cases per region. All significant co-variables were then collectively scrutinized for interaction and interdependence with a generalized linear model with a backward optimization strategy.

**Results:** We found a mean incidence of sarcoidosis of 7 [CI95% 5 to 11] and a mean prevalence of 98 [CI95% 72 to 123] per 100'000 inhabitants. We observed a significant regional heterogeneity, which was not explained by regional differences in the medical services nor the density of physicians. The presence of different types of metal industry and the proportion of grassland agriculture were positively associated with the regional prevalence of sarcoidosis. Air quality did not correlate with the number of sarcoidosis cases per region.

**Conclusions:** The prevalence of sarcoidosis in Switzerland was approximately 5-10 times higher than assumed based on estimates from specialized institutions. There were significant regional differences in Switzerland. We found a higher prevalence in regions with metal industry, and a high agricultural production, especially grassland farming.