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Title: Tuberculosis in health-care workers: 5-year, multi-institutional analysis of the northern region of Portugal

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Body: Introduction: Health care workers (HCWs) in high income countries (HIC) have little or no occupational risk for tuberculosis (TB). Portugal is a HIC that had a high TB incidence 15 years ago and little is known about the impact of TB in its HCWs. Aim: Study the incidence and occupational risk of TB in HCWs in the northern region of Portugal. Evaluate potential risk factors and compare HCWs characteristics with the regional population. Methods: We reviewed all TB cases among HCWs from Jan/06 to Dec/10 in the region. TB incidence was calculated and compared with the regional rate to obtain occupational odds ratio. Correlation between incidence and both admittances and district incidence was analyzed. TB and individual characteristics were compared with a chi-square test. Results: Ninety TB cases were notified from a total of 42713 HCWs, with an annual average incidence of 42,1/100000 and an occupational odds ratio of 1,27 (95%CI: 1.03-1.56). Five (27%) of the hospitals had rates above the annual average, from 111 to 45. 81% of cases worked in hospitals but incidence in primary HCWs was similar. TB incidence in hospital HCWs was correlated with TB admissions ($p=0,026$) but not with district TB incidence. Cases had a median age of 30 years and 23% were male. 40% were nurses and 31% doctors. One had a risk factor. Median time to diagnosis was 45 days. No differences regarding origin, retreatment, location or resistance were found with the regional population. Conclusions: Our study showed that HCWs in the north of Portugal have a significant occupational risk for TB that seems related with TB admission rates. Most cases were in young female nurses with no individual risk factors.