

Aims of the study

While the data situation concerning positive tuberculin skin test prevalence in personnel of general hospitals is quite comprehensive, only little information is available from the sector of psychiatric health care, so far.

Methods

Test results of workers in a large hospital for neurology/ psychiatry and care facility for the mentally retarded in the federal state of Westfalia, Germany were monitored (*hospital 1*). Information were obtained since 1997 retro- and prospectively from medical records of annual occupational examinations. The analysis covers more than 15 years, categorized in three 5-year-panels (1986-90, 1991-95 und 1996-2000). Results were standardized by age, occupational and geographical exposure. In total, 4.500 data records of employees born in countries with low tuberculosis endemicity⁴ were analyzed.

By means of logistic regression models the predictive value of the risk factors age and profession was estimated. The data of the second panel was compared to the one of an investigation simultaneously carried out in a University Hospital in South Germany (*hospital 2*).

Results: Total Prevalence

The rates of all tuberculin skin test (TST)-positive employees changed significantly ($p < .05$) over the time. They decreased from 61% to 53% among medical staff and from 56% to 46% among non-medical staff. For comparison, the rate of patients/residents in panel 3 amounts 43%.

The prevalence in the medical sector was significantly higher as compared to the non-exposed group. **Figure 1** shows the development by age groups.

Prevalence in the most frequent professions

The highest rate of TST-positive results was found among nurses. Regarding other medical professions, geriatric nurses and physicians showed the lowest rates. **Figure 2** presents the estimated prevalence of TST-positive employees in panel 3 (1996-2000) compared to the prevalence of a non-exposed professional group (clerks).

The highest prevalence rate of TST-positive employees among non-medical professions was found – comparable to earlier studies – among kitchen and cleaning personnel (**figure 3**).

Relative Risks

The relative risk (odds ratio, OR) for a positive test result for nurses as well as for kitchen personnel was significantly elevated (OR=1.8, panel 3, 1996-2000, age-standardized, **table 1**). Quiet the same was found for nursing assistants and cleaning personnel (OR=1.5). For all other groups the relative risk ratio is statistically not significant.

Table 1: positive tuberculin skin test (TST) and relative risk (odds ratio, OR) among 31-40 years old employees panel 3 (1996-2000)

	TST(%)	OR	p
clerks (reference group)	36,2		
other non-med. staff			
kitchen personnel	64,9	1,8	*
cleaning personnel	55,5	1,5	*
social professions	45,2	1,3	
technical service	42,1	1,2	
medical staff			
nurses	66,6	1,8	*
nursing assistants	53,5	1,5	*
pediatric nurses	49,2	1,4	
pediatric nurses	43,6	1,2	
physicians	37,0	1,0	

Comparison with other data

The total tuberculin skin test prevalence in hospital 1 was significantly higher as compared to the one in hospital 2 (overall prevalence among medical staff 57% vs. 38%). The age-standardized comparison of professional groups is shown in **figure 4**.

Fig. 1: Tuberculin test* by exposure and age born in countries with low tuberculosis endemicity

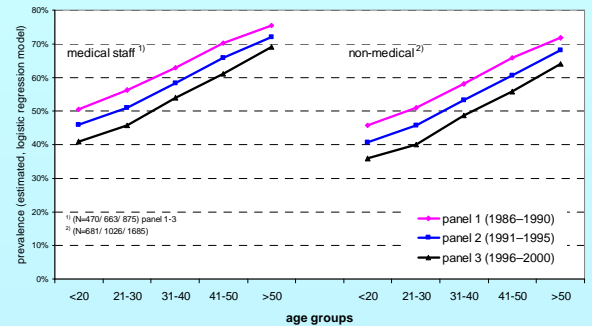


Fig 2: Tuberculin test* 1996-2000 (panel 3) -medical staff vs. clerks (reference group)

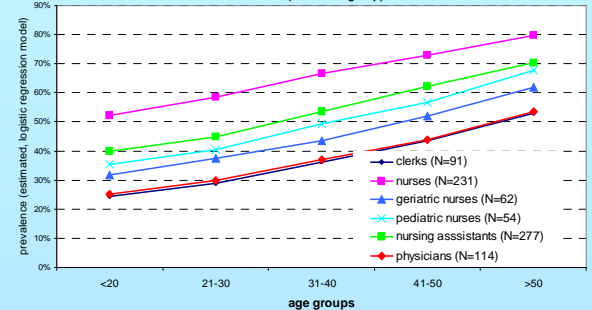


Fig 3: Tuberculin test* 1996-2000 (panel 3) - non-med. staff vs. clerks (reference group)

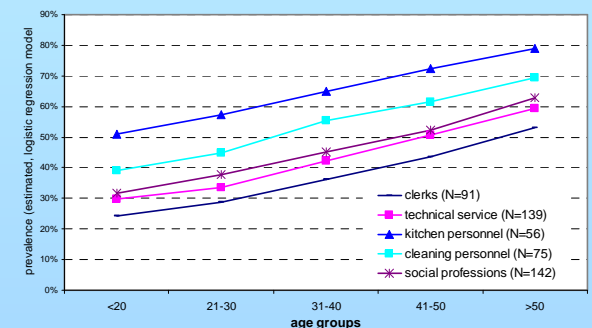
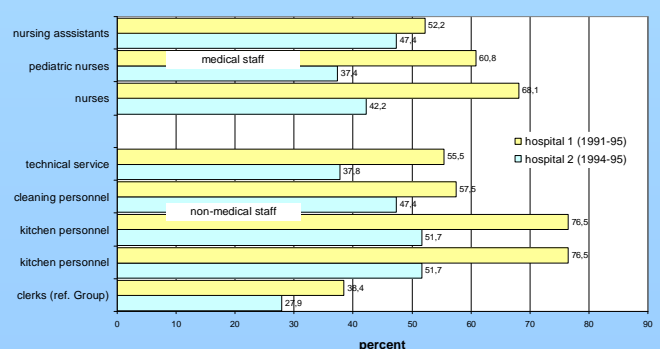


Fig 4: Tuberculin test* in the mid-nineties - comparison of two hospitals by professional groups (aged between 33-40 years)



Conclusions

In general, infection with *M. tuberculosis* in the German health care sector decreased within the last decades – conformable to the epidemiology of the general population. Different prevalence rates in the two institutions might be caused by regional or methodical differences (e.g. test handling).

Our investigation demonstrates the relevance of the tuberculosis skin test for epidemiological investigations. It is suitable for routine application and occupational hazard analysis, because easy to handle, cheap and specific.

¹ FFAS - Freiburg Research Center of Occupational and Social Medicine, Germany (contact: michaelis@ffas.de) ² University of Wuppertal, Department of Applied Physiology, Occupational Medicine and Infectiology, Germany ³ Occupational Health Service, City of Wuppertal ⁴ WHO 2002: estimated incidence rate, 0-49 cases per 100.000 inhabitants * year