

SHORT REPORT

An audit of TB prevention on Italian health care workers

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Key words

Tuberculosis • Biohazard • Occupational physician

Summary

Tuberculosis (TB) is considered an occupational disease in health care workers. The aim of this study is to assess the state of tuberculosis prevention among the personnel of the Vaccination Services of the Puglia Region (Italy), who were given an interview-based standardised questionnaire. Of the 302 replies, TB screening had been undergone by 80.5%, whom 78.6% took

advice by the occupational health physician. Of those who were negative to the PPD skin test, 60.6% had received BCG, whom 78% took vaccination advice by the occupational health physician. In Italy, the procedures for the monitoring and prevention of tuberculosis are a consolidated practice for occupational health physicians.

Short report

Tuberculosis (TB) is considered an occupational disease in health care workers (HCWs) and its transmission in health care facilities is an important concern [1]. Professional exposures were associated with TB disease among HCW regardless of their job designation, even after controlling for living conditions, suggesting transmission from patients [2].

The prevention of TB in HCW has always been one of the major commitments of the Italian National Health Service, long before the introduction of the laws regarding Health and Safety at Work. Already in 1970 obligatory screening was carried out on prospective new employees through the *Mantoux* tuberculin skin test and those with negative results received the BCG vaccine [3]. With the availability of new clinical and epidemiological data and through the Presidential Decree of 7th November 2001, vaccination against TB has been limited to those, with a negative tuberculin result, who work in an environment with a high risk of exposure to multi-drug resistant strains, or those who, in the case of cuticonversion, cannot receive preventive drug therapy because of clinical contraindications to the specific drugs used [4, 5]. With the coming into force of the law decree 626/94 the occupational health physician (OHP) now has the responsibility for monitoring and prevention of TB in HCW [6].

The aim of the present study is to assess the state of TB prevention among the personnel of the Vaccination Services of the Puglia Region in Italy. The study was carried out in the context of a large cross-sectional survey on the determining factors and the level of vaccination coverage for those vaccination recommended to HCW.

The study was conducted through an interview-based standardised anonymous questionnaire which reported demographic information, occupation, length of service in the vaccine clinic, TB screening with the intradermal Mantoux reaction and any BCG vaccination. The interviewee was also asked if the intradermal Mantoux reaction and BCG vaccination had been proposed and organised by the OHP, or if the worker had attended to it alone.

The questionnaire was given to all the employees of the Apulian Vaccination Services in the period March-May 2008.

Ethical approval was not required for this study because the project involves data collection from HCWs which is conducted purely for the purposes of service evaluation and professional development and not for the purpose of direct scientific enquiry.

The total number of respondents were 302 of which 72.8% (n = 220) were women and 27.2% (n = 82) were men, with an average age of 48.9 years (SD = 6.7; range 25-60).

Among the personnel 58% (n = 175) were nurses, 8.9% (n = 27) were health visitors and 33.1% were doctors (n = 100). The average length of service in the vaccination service was 13.4 years (SD = 9.0), varying from 1 to 43 years. Over 50% of the interviewees had more than ten years service.

Altogether 243 (80.5% of total) personnel stated that they had been screened for TB at hiring with the intradermal Mantoux reaction test, 175 women (79.5% of all women; 95% CI: 74.2-84.9) and 68 men (82.9% of all men; 95% CI: 74.8-91.1). In detail, broken down by occupation: they were 76.0% of the nurses (95% CI: 67.7-84.3), 77.8% of the health visitors (95% CI: 62.1-93.5) and 85.9% of the doctors (95% CI: 79.8-92.7).

The proportion of staff who had the intradermal Mantoux reaction test does not vary significantly between those with less than ten years service: 79.8% (95% CI: 72.6-87) compared to those with more than ten: 80.5% (95% CI: 74.3-86.6). In 78.6% of cases the test was proposed by the OHP.

Forty of the staff, 25 women and 15 men (occupational breakdown: 17 nurses, 4 health visitors and 19 doctors), that is 16.5% of the total, said that they had had a positive reaction to the test. The average age of those Mantoux positive was 50.6 (SD = 5.2; range 40-59), men 54.3 (SD = 2.9; range 49-59) and women 48.6 (SD = 5.1; range 40-57).

The number of personnel who received the BCG vaccination was 123 (40.7% of the total staff and 60.6% of the 203 with a negative reaction). The breakdown by years of service was: 61.8% (95% CI: 48.9-74.6) with less than five years, 67.5% (95% CI: 52.9-82) with from 5-10 years, 64.9% (95% CI: 55.4-74.4) with from 11-20 years and 100% for those with more than 20 years service. The average age of those vaccinated was 48.2 (SD = 6.8; range 28-60). In 78% of cases the vaccination was proposed by the OHP.

The procedures for the monitoring and prevention of TB are a consolidated practice for OHPs and for the industrial medical services, having been in use for almost forty years in the National Health Service. The higher percentage of doctors having been screened for TB compared to the other occupations will be because by law, medical students are duty bound to be screened for TB and be vaccinated if the results are negative [3]. The vaccination coverage for employees with a negative

skin test is quite high, showing good compliance with the law before the issue of the new law in 2001 which made vaccination obligatory, after negative screening, only for those who work in an environment with a high risk of infection, or those for whom chemoprophylaxis is not possible after exposure. In fact, the employees under 28 years of age were not vaccinated [4]. The prime role of the trust in employee health monitoring and prevention of TB is evident but this is also due to the fact that TB screening and BCG vaccination is not available in the private sector.

The prevention of infection for HCWs in the work environment is based on three linked strategies: the adoption of primary prevention in the form of the usual standard operational precautions together with immunisation, and secondary prevention in the form of post-exposure prophylaxis [4, 6].

There are several studies showing that the risk of TB among HCWs can be reduced to some extent by BCG vaccination but the use of this vaccine in HCWs is not universally recommended. Because of vaccination with BCG has not been shown consistently to provide protection in different settings, adoption of primary prevention and post-exposure prophylaxis in HCWs must be encouraged by OHPs [7].

Protection against occupational biohazards needs resources and financial investment both in terms of setting up the protective measures and in staff training, but the cost of non-protection can be higher in terms of worker health (understood as a balance between physical, psychological, environmental and social factors), productivity and the quality of the work environment [8].

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■ Received on January 13, 2009. Accepted on April 27, 2009.

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