OCCUPATIONAL FACTORS ASSOCIATED WITH LATENT TUBERCULOSIS INFECTION AND CONVERSION IN HEALTH CARE WORKERS IN A HIGH TUBERCULOSIS/HIV PREVALENCE SETTING

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Objective South African health care workers are at growing risk of tuberculosis (TB). This study sought occupational risk factors for latent TB infection (LTBI).

Methods A sample of public sector facility staff in Cape Town completed a questionnaire and underwent 3 tests for LTBI: (1) tuberculin skin test (TST) (skin induration > 10 mm) (2) Quantiferon-TB Gold In-Tube (QFT-GIT) and (3) TSPOT. TB test. These were repeated one year later and annual rate of test conversion calculated. Occupational factors associated with baseline LTBI and conversion were sought, adjusting for age and gender and stratified by primary care vs TB hospitals.

Results 505 staff participated from 7 facilities. LTBI prevalence was high: TST 84%; QFT-GIT 65%; and TSPOT. TB 60%. Predictors of positive TST in primary care were employment duration >20 years [OR = 4.17 (95% CI 1.12–15.62)]; hospital staff with training on self-protection from TB infection were less likely to test positive [OR = 0.38 (0.16–0.91)]. Predictors of a positive QFT-GIT test in primary care were involvement in sputum collection [OR = 3.25 (1.28–8.09)] and employment >20 years [OR = 2.42 (1.09–5.38)], while again there was a protective training effect in hospital staff [OR = 0.41 (0.22–0.77)]. Predictors of a positive TSPOT. TB in primary care were providing home-based care to TB patients [OR = 4.14 (1.60–10.70)], and, paradoxically, working at a facility which advocated cough etiquette [OR = 2.06 (1.04–4.10)] or provided surgical masks to coughing patients [OR = 3.65 (1.16–11.51)]. The conversion rates were: TST 38% (95% CI 24–55) and QFT-GIT and TSPOT. TB both 22% (15–30). There were no consistent occupational predictors of conversion.

Conclusion LTBI prevalence and conversion are very high in this population, suggesting occupational risk. Occupational factors included duration and intensity of exposure (primary care, sputum collection, home visits), suggesting targets for infection control. However, more research is needed on occupational risk.

ASSOCIATION BETWEEN EXPOSURE TO MRI-RELATED MAGNETIC STRAY FIELDS AND SYMPTOMS REPORTED BY WORKERS IN THE PUBLIC HEALTH AND RESEARCH SECTOR

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Objectives This study aims to assess which acute symptoms are prevalent among health care and research staff working with MRI scanners, and whether these are related to their exposure to static magnetic stray fields.

Methods Fourteen health care and research MRI facilities were surveyed. Full-shift measurements of exposure to static and time-varying magnetic fields (SMF and TVMF) among staff were collected using personal dosimeters. Participants filled out one to two forms per shift, on which they reported their activities and symptoms they had experienced during (part of) their working day. Fourteen target symptoms were included which had been reported in literature in association with exposure to MRI-related SMF and TVMF. A subgroup of five ‘core’ symptoms was defined based on stronger (statistical) evidence for their association with SMF and TVMF exposure. Six additional unrelated symptoms were included to control for over-reporting of symptoms in general.

Results In total, 1,056 forms were completed by 334 participants. Nine out of 14 target symptoms were reported more frequently among staff exposed to SMFs, compared to unexposed staff. The proportion of forms on which at least one target symptom was reported increased with increasing scanner field strength. This trend was even stronger when focusing on the five ‘core’ symptoms. Strongest associations were seen for nausea, vertigo, metallic taste, and feeling of instability. No association was seen for the subgroup of unrelated symptoms.

Conclusions An increased number of symptoms was reported by staff working in the static magnetic stray field of an MRI-scanner. A clear trend of increased symptom reporting with increasing scanner field strength underlines the potential that a causal relation exists between exposure to MRI stray fields and specific symptoms.