

Prevalence of bacteriologically confirmed pulmonary tuberculosis in the Bhutanese refugees in Nepal. Results of active case finding

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Background: Approximately 100,000 Bhutanese refugees live in camps in southeastern Nepal. Since December 2007 the International Organization for Migration (IOM) in Nepal has conducted medical screening of Bhutanese refugees prior to resettlement in USA, Canada, Australia, New Zealand, Denmark and Norway. Screening for TB included both sputum smears and cultures. The estimated prevalence of all forms of TB was 243 per 100,000 in Nepal (WHO, 2006), and 217 per 100,000 in Bhutanese refugee camps prior to resettlement (UNHCR, 2007).

Methods: Depending on the age group and specific instructions of the resettlement countries, suspected TB cases were identified with the combination of the medical history, physical examination, CXR and TST. Suspected cases were referred for microbiological examination of three sputum samples by both acid-fast bacilli staining and liquid culture for TB. Drug susceptibility testing (DST) was performed on all new positive cultures. If smears or cultures were positive, or if clinical and radiological findings were consistent with active TB, directly observed treatment was performed.

Results: From December 13, 2007 to July 31, 2009, IOM Nepal conducted medical examinations of 23,459 refugees, of which 2,391 (10.2%) were suspected TB cases. Prevalence of bacteriologically confirmed (positive sputum smears or/and cultures) was 644 per 100,000. Prevalence of smear-positive cases was 230 per 100,000. Compared with culture, sensitivity of sputum smears was only 32%. DST yielded 2% MDR TB among culture confirmed cases; 5% with resistance to more than one drug, but not MDR TB; 3% INH mono-resistant TB; 3% PZA mono-resistant TB.

Conclusion: Results of this cross-sectional study show high prevalence of infectious pulmonary TB among the Bhutanese refugees in Nepal. These results highlight the increase in case detection when sputum culture is performed, which can detect TB cases with low bacillary load. We identified prevalence of pulmonary TB at least 2.7 times greater than previously reported prevalence of all forms. This points out the benefit for wider use of sputum culture to detect infectious TB in high burden countries. A significant proportion (13%) of cases with drug resistance highlights the need for DST to direct TB therapy.

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Newly diagnosed tuberculosis patients and tobacco use in North Malaysia: The prevalence of tobacco use, knowledge, and attitudes

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Background: Sufficient evidence concludes that tobacco smoking is strongly linked to tuberculosis (TB). It was suggested that a considerable proportion of the global burden of TB may be attributable to smoking. This study aimed to document the prevalence of smoking among newly diagnosed TB patients and to learn about their tobacco use knowledge and attitudes.

Methods: Data on smoking prevalence were obtained based on reviews of routinely collated data from January through December 2008 in the state of Penang. The study setting comprised of five chest clinics located within Penang and Wilayah Persakutuan Kuala Lumpur health districts, Malaysia. A validated 58-item questionnaire was used to assess the tobacco use knowledge and attitudes of those TB patients who were smokers.

Results: Smoking status was determinant in 817 of 943 new cases of TB during study period. Of this, it was estimated that the prevalence rates of current and ex-smoking among TB patients was 40.27% (329/817) and 13.95% (114/817), respectively. Of 86 cigarette smokers who were eligible for a larger project, 93% responded to the survey. The mean (\pm SD) total score of tobacco use knowledge items was 4.23 ± 2.66 (maximum possible score = 11). More than half of the participants (51.3%) were moderately dependent on nicotine and less than half (47.5%) had knowledge about the body system on which cigarette smoking has the greatest negative effect. The majority wrongly believed that smokeless tobacco can increase athletic performance (60%) and that it is a safe and harmless product (46.2%). However, an overwhelming proportion (>80%) of the patients believed that: tobacco use is dangerous to health and that smokers are more likely to die from heart disease when compared with nonsmokers. The use of smokeless tobacco was moderately prevalent among the participants with 28.8% reporting ever snuffed, but the use of cigar and pipe was uncommon.

Conclusion: Smoking prevalence rate was high among patients with TB in Malaysia. These patients generally had deficiencies in knowledge of tobacco use and its health dangers, but had positive attitudes against it. Efforts should be

geared towards reducing tobacco use among this population due to its negative impact on TB treatment outcomes.

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33.10

Frequency of tuberculosis in the biggest island of the Persian Gulf

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Background: Despite availability antituberculosis drugs for almost 50 years, tuberculosis (TB) continues to exert an enormous toll on world health. The incidence of TB is increasing all over the world. Qeshm represents a region in south of Iran that is the biggest island in the Persian gulf with 23 thousands inhabitants with a long tradition in TB control, including a centralization of the bacteriological diagnostic facility. The present study was intended to analyze the transmission of *Mycobacterium tuberculosis* by a combination of conventional epidemiological approaches.

Methods: *Mycobacterium tuberculosis* analyzed in this study were collected at the Health Care Center in Qeshm, Iran. A total of 81 new, bacteriologically verified TB cases were registered in Qeshm Island between 2003 and 2008. All the isolates were examined for their susceptibility to ethambutol, isoniazid, streptomycin, rifampin, and pyrazinamide by using a radiometric culture system (BACTEC). The data obtained from the cultures analyses were interpreted by using demographic data, such as age, sex, ethnicity, and residence, for the patients. The risk factors among the patients for being part of an active chain of transmission, as opposed to demonstrating reactivation of a previously acquired latent infection, were estimated by statistical analyses (SPSS).

Results: A total of 81 clinical isolates belonging to patients having pulmonary and extra pulmonary tuberculosis were collected during Jan 2003 to Nov 2008. The incidence of tuberculosis in female was 25.9% and in male was 74.1%. This survey observed 47.1% of immigrated Afghans and 39.1% of Pakistanis were infected with tuberculosis. Regarding the literacy 57% were unlettered. 91.7% of people referring to health center were new patients. 68.8% people were infected with pulmonary tuberculosis. The peoples over 60 year were highest group infected to pulmonary tuberculosis (30.4%) and age groups 30-44 were highest the cases infection external pulmonary tuberculosis. The major chains of recent transmission were localized to distinct geographical regions in the area.

Conclusion: TB is frequent among immigrants, especially from Afghanistan and Pakistan, but it is apparently readily suspected, diagnosed, and treated by the health care system. Indigenous patients with pulmonary symptoms are

not primarily suspected to have TB and, therefore, play an important role in recent TB transmission in Qeshm.

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The clinical and epidemiological characteristics of *Mycobacterium tuberculosis* Beijing/Wfamily strains in a major immigrant-receiving province of Canada

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Background: Tuberculosis resulting from the Beijing/W family of *Mycobacterium tuberculosis* strains is a global concern due to associations with tuberculosis outbreaks, antituberculosis drug resistance, and treatment failure and relapse. This study sought to determine if Beijing/W stains represent an emerging public health threat within Canada, a major immigrant-receiving country with low tuberculosis incidence.

Methods: This population-based cohort study investigated archived culture-positive *M. tuberculosis* isolates from cases diagnosed in the province of Alberta, Canada between 1990 and 2007. Isolates were Beijing/W genotyped with PCR-based region of difference analysis and DNA fingerprinted with IS6110 RFLP. In 449 isolates, Beijing/W status was validated with spoligotyping. Demographic and clinical data for each isolate was obtained from the provincial TB Registry. Statistical analyses consisted of Pearson's chi-square test, Fisher's exact test, and independent sample t-test.

Results: Nearly 99% (n=1,900/1,927) of isolates were available for genotyping. Beijing/W strains comprised 19% (n=372) of isolates, with foreign-born persons contributing 91% (n=337) of all Beijing/W isolates (p<0.001). The distribution of Beijing/W strains within the foreign-born population was remarkably heterogeneous; 90% (n=302) of Beijing/W isolates occurred among persons from the Western Pacific region (p<0.001). Conversely, the Canadian-born Aboriginal and non-Aboriginal subpopulations had similar distributions of Beijing/W strains (n=19 and 16, respectively; p=0.389). Cases attributed to Beijing/W and non-Beijing/W strains were comparable in terms of age at diagnosis (p=0.055), sex (p=0.488), disease phenotype (respiratory or non-respiratory disease) (p=0.947), and sputum smear positivity (p=0.121). Beijing/W and non-Beijing/W strains also had similar associations with first-line drug resistance among Canadian-born persons (p=1.000) as well as within each foreign-born subpopulation, namely persons from the Western Pacific region (p=0.902) and other regions (p=0.512). Although a comparable proportion of foreign-born Beijing/W and non-Beijing/W cases were involved in transmission clusters (p=0.329), non-Beijing/W strains accounted for a significant proportion of clustered cases within the Canadian-born population (p=0.023).