A Study to Compare Chest X-Ray Reports on Overseas Nursing Recruits

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Abstract
This study was carried out to assess if there was a difference in the Chest X-ray (CXR) report on overseas nurses carried overseas and later repeated in Ireland. This study was carried out in 2 Irish teaching hospitals. The subjects of this study comprised all overseas nurses recruited in each of the 2 hospitals within the defined period. The total number of subjects recruited from the 2 centres was 84. Only nurses that had a repeat CXR were included in this study. 6/84 (7%) of the CXR reports were abnormal and were subsequently diagnosed as Latent TB. 2/36(52%) of the CXR that were reported as abnormal were subsequently reported as normal. Cohen's Kappa suggested that the agreement in the results of CXR done overseas and in Ireland is poor. The rate of discrepancy between the CXR done overseas and in Ireland was 7%.

Introduction
Tuberculosis is endemic in many Asian countries and the Philippines ranks ninth on the list of 22 high burden tuberculosis (TB) countries in the world, according to the World Health Organization (WHO) Global TB Report 2009. The escalating trend of developing nations recruiting nurses from developing countries has raised concerns about the impact of migration on nursing workforce and the health systems in both the source and host countries. It is possible that TB migration into the host countries could occur with migration of such Health Care Workers (HCW). There is no gold standard test for the diagnosis of latent TB, the diagnosis involves a number of tests. In asymptomatic persons, exposure to and potential infection with TB can be demonstrated by clinical assessment, a positive Tuberculin Skin Test (TST) or a positive Immunological blood test i.e. Interferon Gamma Release Assays (IGRA) and CXR. Neither TST nor IGRA can distinguish active TB from Latent Tuberculosis Infection (LTBI). CXR is a major screening and diagnostic tool for TB and with clinical assessment can help distinguish active TB from LTBI. This study was carried out to assess if there was a difference in the CXR report overseas and the CXR report in Ireland.

Methods
This study was carried out in two Irish teaching hospitals. The subjects of this study comprised all overseas nurses recruited in each of the 2 hospitals within the defined period. The occupational health records of overseas nurses recruited between January 2005 through to January 2006 were reviewed in the Cork University Hospital (CUH). A similar health record search was carried out in Beaumont Hospital (BH). The occupational health records of overseas nurses recruited between December 2004 through to December 2006 were reviewed. The country of origin, and BCG status was noted in each case. Asbestos nurses reports from the overseas hospitals were noted and compared to the results of the chest radiograph reports that were subsequently repeated for some individuals in the Irish hospitals. All the radiology reports were obtained and were readily available. The total number of subjects recruited from the 2 centres was 84. CXR results from BH and CUH were assessed. The quality and authenticity of these results should be evaluated.

Results
All of the 54 nurses in the CUH had a repeat CXR. 5/30 nurses who had a normal CXR from overseas, had an abnormal CXR when the CXR was repeated in Ireland. One of the nurses had a CXR report from overseas that was abnormal and this was subsequently reported as normal when repeated in the CUH. Those with an abnormal CXR were referred to a local respiratory specialist in CUH. The 3 nurses were assessed clinically and were investigated by bronchoscopy. All three nurses had a positive mantoux reading between 13-14mm. All three had been vaccinated with BCG. On the basis of their clinical and radiological assessment they were diagnosed as having latent TB. In BH had a repeat CXR. 23/30 had a repeat CXR due to a strongly positive mantoux. 2/30 had reported a history of asymptomatic symptoms. 1/30 had a reported abnormal CXR report from India. Three nurses were subsequently reported as being abnormal. The nurses were referred to a local respiratory specialist for further tests.

Discussion
The data collected in this study has demonstrated that there was a significant difference in the CXR report from overseas and the CXR report in Ireland. It is difficult to identify the exact reasons for these observed differences however, there are many possible factors. The interval range between the initial CXR overseas and its subsequent repeat in Ireland can extend between 1-11 months. One could postulate that it is reasonable that the individual could have been exposed to TB during this lengthy time interval. Often HCW’s from high incidence countries supply results of TB screening performed in their country of origin. The quality and authenticity of these results should be evaluated.

The performance of CXR expressed as sensitivity and specificity to pick up culture-positive TB cases depends on the intensity and the presentation of the disease. Another important factor is the experience and the interpretation skill of the reader, making CXR subject to intra- and inter-reader variation. The well known International Union Against Tuberculosis and Lung Disease (IUATLD) study on x-ray classification found up to 34% disagreement. Other studies had also shown that there are variations in interpretation of radiological findings between physicians. In particular, a study of 101 clinicians involved in managing TB demonstrated that agreement between clinicians were only fair to moderate. On the other hand, screening for TB among Russian populations may be suboptimal due to limitations in health systems in both the source and host countries. It is possible that TB migration into the host countries could occur with migration of such Health Care Workers (HCW).

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References


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