Tuberculosis Exposure in the Health Care Setting: Prevention of Occupational Transmissions

The burden and impact of TB
The World Health Organization (WHO) estimates that every second someone in the world is newly infected with TB bacilli. Overall, one-third of the world's population is currently infected with the TB bacillus. Left untreated, each person with active TB disease will infect on average between 10 and 15 people every year. The WHO Global TB Control Report in 2004 calculated that there were 8.8 million new cases of TB in 2002, of which 3.9 million were smear-positive. The global incidence rate of TB (per capita) was growing at approximately 1.1% per year, and the number of cases at 2.4% per year. The growth in case notifications has been much faster in African countries with high HIV prevalence and in Eastern Europe (mainly the former Soviet Union).

Out of 210 countries 180 implemented the WHO Directly Observed Treatment Short Course (DOTS) strategy during 2002. A total of 13.3 million TB patients, and 6.8 million smear-positive patients, were treated in DOTS programs between 1995 and 2002. Nurses, as primary care providers for TB patients, have increasingly been involved in the delivery of these programs as the first contacts for patients and thus are at risk of potential TB transmission.

Considering either high or low TB prevalence health care settings, occupational transmission of TB can occur because TB is often associated with HIV/AIDS infection, or because standards of practice preventing nosocomial infections are not available or fully observed by nurses and other health care staff. Coming into close contact with active TB or MDR-TB patients, without necessary precautions, increase the risk of transmission from patients to staff or to visitors. Therefore, ICN has recognized the importance of developing guidelines for nursing personnel to prevent TB transmission as an occupational hazard.

Statement of the problem
Recent outbreaks in health care settings dictate the need to minimize the risk of transmission to the health staff, patients, and visitors. Nurses and other health personnel as well as patients are at an increased risk for nosocomial acquisition of tuberculosis due to unsafe practices, reduced standards, and lack of adequate management and resources.
Strategies for Eliminating Occupational Transmission of TB

Nurses and National Nurse Associations must become key partners with employers and others in ensuring a safe work environment. TB is a workplace matter because it affects the health of nurses and other health care providers, decreases the quality and productivity of nursing services. In addition, it increases direct and indirect health care costs because TB and especially MDR-TB treatment are high-cost interventions. Therefore, to prevent the transmission of TB the International Council of Nurses (ICN) believes that governments and health care organizations should (both for the public and health care providers, including nurses):

- provide early access to essential TB testing;
- administer treatment when necessary;
- ensure that follow-up services, education and counseling are made available;
- develop and implement national practice guidelines for the prevention of TB transmission;
- link existing HIV/AIDS workplace prevention initiatives with new TB transmission strategies;
- implement DOTS as an internationally proven and effective TB treatment regimen;
- develop sustainable cross-institutional networks and TB prevention program partnerships;
- work in alliance with National TB Control Programs; and
- respect confidentiality and ensure non-stigmatization and non-discrimination.

Nursing organizations should advocate for employer strategies to minimize the risk of tuberculosis transmission due to lack of appropriate guidelines or resources, and help implement organizational measures that increase awareness about the causes and factors of nosocomial infections.

Interventions to Minimize TB Transmission in Health Care Settings

Nurses must be informed and educated about the etiology, transmission, prevention and treatment and the potential risk factors of environmental TB exposure in the workplace. Appropriate precautionary measures, including guidelines and standards of practice for nurses, should be implemented in all health care settings to prevent further spread of the infection. Following the recommendations of the ICN Guidelines for Nurses in the Care and Control of Tuberculosis and Multi-Drug Resistant Tuberculosis, ICN supports:

- Nurse responsibility to engage in continuous risk assessment related to workplace (environmental) risk factors known to increase the potential of TB transmission;
• Employer responsibility to ensure protective equipment (e.g. high filtration masks) and the implementation of guidelines and standards for safe nursing practice;
• Employer responsibility for occupational (environmental) safety (e.g. providing ventilation systems or isolating patients with active TB in negative pressure rooms)
• Education for all nurses about the epidemiology, diagnosis, transmission, preventive measures and post-event alternatives;
• Increased participation of nurses in the development of institutional/organizational strategies that support close monitoring of all TB infected persons as part of the routine health- and nursing care.

**Individual Focused and Post-event Interventions for Nurses with TB**

ICN believes that a TB or MDR-TB positive nurse must know her/his TB or MDR-TB status through appropriate testing procedures (either by skin-testing and/or additional diagnostic measures) as recommended by international guidelines. Nurses should have access to testing services that employ confidentiality and include pre and posttest counseling and support services. The nurse must be fully informed about the clinical diagnosis and treatment of the infection. Nurses diagnosed with TB/MDR-TB should have access to appropriate treatment.

Employers have to implement policies to avoid stigmatization and discrimination of nurses due to acquired TB infection. To avoid stigma and to make TB treatment effective, it is essential that the employer respects confidentiality, including the TB status and recovery of the nurse or other health care workers.

Nurses and employers must restrict practice if the risk of transmission, such as positive sputum, is present. Employers should provide financial and other forms of social support to nurses to compensate the loss due to the disease and absence from employment. They should equally ensure that nurses self-limiting practice for the period of TB treatment can return to their position once cured or provide alternative voluntary career choices.

**Training**

Training to address occupational TB transmission should be based on a set of institutional policies and guidelines and provided on a regular basis depending on specific staff competencies and needs. Training should include:
orientation to the workplace environment, guidelines and standards of practices;
information on etiology, epidemiology, causes and types of TB infection;
explanation of causes and ways of TB transmission from patients to staff and visitors;
demonstration on how to use preventive measures (e.g., personal and occupational hygiene);
information on testing, diagnosis and treatment protocols;
improving knowledge about counseling and support techniques; and
developing awareness and skills to avoid stigmatization and discrimination of patients or staff infected by TB.

ICN believes that a workplace policy and program for the prevention of occupational TB transmission should be in place in every health care institution. ICN supports National Nursing Associations develop or revise TB guidelines and standards of practice so that they identify TB transmission as an occupational hazard and advise on effective institutional measures for nurses that include access to testing, treatment and counseling, and promote training and stigma and discrimination free clinical facilities.

For further information, please contact: icn@icn.ch

The International Council of Nurses (ICN) is a federation of more than 130 national nurses associations representing the millions of nurses worldwide. Operated by nurses and leading nursing internationally, ICN works to ensure quality nursing care for all and sound health policies globally.

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References

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