

INFECTION CONTROL COMMITTEE
ST. LUKE'S HOSPITAL
MALTA

**T.B. POLICY
FOR
GOVERNMENT HOSPITALS**

July 2002

Introduction:

A recent review of the epidemiology of tuberculosis in Malta for the past 10 years has shown that Malta is a low prevalence country with the average incidence rate during this period being < 10 / 100,000. This position is shared by several other European countries such as Norway, Switzerland and the Netherlands. Cases of tuberculosis among health care workers have been also been observed in most European countries although MDR-TB is rare.

The development of Mycobacteria with secondary resistance (MDR-TB) can be curbed by means of a good national tuberculosis control programme. However the import of MDR-TB bacilli can **not** be prevented by this means. Effective guidelines to reduce the spread of imported MDR-TB strains are thus necessary and need to be implemented, without delay also in Malta.

Although analysis of case notifications in Malta for the past 40 years do not feature health care workers as a high risk group, it is possible that nosocomial spread of tuberculosis may have passed undetected, as has also been observed in other countries. Investigation of the several tuberculosis outbreaks that have occurred in the US, UK, Spain, Portugal and Italy have identified several factors facilitating group infections. The most important were:

- clustering of infectious tuberculosis patients in HIV treatment wards
- doctors unsuspecting the presence of tuberculosis
- delay in diagnosing MDR-TB
- inadequate treatment regimens
- disregard of infection control policies.

Early Identification and Evaluation of Persons with Suspected Infectious TB:

Identification of individuals with active TB involves a careful evaluation of those known to be in high-risk groups or presenting with the symptom complex described below and a time course compatible with a diagnosis of infectious TB. Efforts to diagnose and prevent cross infection should be vigorous and thorough and should begin on initial encounter, and even before admission.

A **high index of suspicion** is required of individuals who have

- chest radiograph suggestive of active TB including:
 - ◆ Upper lobe pulmonary infiltrate in an HIV-negative patient or a patient at low risk for HIV infection;
 - ◆ Pulmonary infiltrate in any lung location in a HIV-infected patient or a patient at high risk for HIV infectionOR
- have an AFB smear-positive sputum or gastric aspirate; OR
- have **three** or more of the following criteria:
 - ◆ chronic cough (over 4 weeks' duration);
 - ◆ fever (longer than 4 weeks);
 - ◆ weight loss;
 - ◆ residence in countries considered to be hyper-endemic for T.B. and/or multi-drug resistant tuberculosis:

Appropriate diagnostic measures should be undertaken to either confirm or refute initial suspicions of TB.

If admission is required, arrangements should be made immediately for the patient to be transferred to the Infectious Diseases Ward at St. Luke's Hospital where the patient is to be housed in single isolation room with negative pressure ventilation offering at least 10 air changes per hour. The Infectious Disease Physicians should be contacted and informed about the case in point. Such cases have priority over any other occupants already housed in these isolation facilities. Appropriate isolation precautions should be immediately initiated and the Infection Control Unit notified. The Unit will monitor compliance with isolation procedures, manage breaches in isolation precautions and determine when to discontinue isolation precautions in consultation with the patient's attending physician. Elective procedures should be postponed until the patient is non-infectious.

Isolation precautions should be continued even in the face of negative AFB smears if there is a high index of suspicion of active TB even if the patient is placed on anti-tuberculosis therapy. Individuals who have a sputum smear that is AFB-negative but culture-positive have been shown to transmit M. tuberculosis to other people, although at a much lower rate than individuals who have a sputum smear that is AFB-positive. It is preferable to initially "over" isolate than to delay implementing appropriate isolation precautions.

Children with pulmonary TB are not usually as infectious as adults because children do not usually develop cavitory or sputum smear-positive TB. However, since there is evidence that children can transmit TB to others, isolation of children with suspected infectious TB is prudent.

Isolation precautions for patients with suspected or confirmed infectious TB:

- The patient should remain in the isolation room and only leave the room for essential procedures when a proper mask should be worn.
- The door and window to the isolation room is kept closed except when individuals are entering or exiting the room
- The number of people entering the room should be limited. Visitors should be restricted to members of the patient's household. Overtly immunocompromised individuals as well as children under 12 are not to be allowed because such children are highly susceptible to infection with *M. tuberculosis*
- Patients and their visitors should be educated about practices designed to reduce or eliminate production of airborne droplet nuclei (e.g., covering mouth and nose with tissues when coughing)
- All persons entering the room MUST wear an appropriate mask/respirator with 0.5 micron filtration capability and follow the respiratory precautions outlined in the Isolation Policy
- Patients, visitors, and HCWs should be instructed about the importance of adhering to TB isolation precautions
- If the patient requires investigations (e.g.. radiography), it is recommended whenever possible, to book appointments at times to minimise the exposure of other patients (e.g., the end of the day). In such cases consultation should be undertaken with the patient's consultant and/or the Infection Control Unit to establish the best date and time. During the visit, the patient should be provided with the appropriate masks and given instructions regarding their proper use.

Isolation precautions for individuals with suspected or confirmed infectious TB undergoing procedures either as out-patient or admitted patients:

The following isolation precautions should be implemented:

- ensure that, whenever possible, procedures are performed in a room with negative pressure ventilation at 10 air changes per hour. This is especially important when cough-inducing procedures (e.g., sputum induction, aerosol treatments and bronchoscopy) are being performed.
- instruct patients to cover mouth and nose with tissues when coughing or sneezing;
- ensure that only essential personnel are present during the procedure;
- ensure that all persons present during the procedure wear an appropriate mask (respirator);

- ensure that people enter or leave the procedure room during the procedure only if absolutely necessary (keep the door to the procedure room closed except when people are entering or leaving the room)
- ensure that patients remain in the procedure room until coughing subsides, thereby limiting exposure of other individuals who are in the general waiting or recovery areas;
- allow adequate time between patient procedures so the air will be free of droplet nuclei or place a notice on the procedure room door advising HCWs who must enter the room that appropriate masks should be worn for a specified time [the required length of time is based on the number of air changes and will be supplied by the Infection Control Unit]
- perform procedures at the end of the schedule, whenever possible.

Discontinuation of isolation precautions:

Isolation precautions should be continued until patients are assessed to be non-infectious. A number of variables influence the length of time an individual remains infectious including the level of competence of the patient's immune response, the duration of, and adherence to, chemotherapy and the presence or absence of drug-resistant TB.

Criteria for discontinuation of isolation precautions should not be based on a fixed interval of treatment (e.g., 2 weeks) but rather on evidence of clinical and, if possible, bacteriological improvement and would be a joint decision involving discussing between the Infection Control Unit and the patient's attending physician.

As a rule, isolation in hospitals would be discontinued when:

- ◆ consecutive sputum smears are negative for AFB on 3 separate days AND
- ◆ there is evidence of clinical improvement AND
- ◆ there is reasonable evidence of adherence to the medication regimen for a minimum of 2 weeks.

If a sputum is unobtainable (e.g., sputum expectoration or gastric lavage), discontinuation of isolation may be indicated following :

- ◆ evidence of adherence to the treatment regimen for a minimum of 2 weeks AND
- ◆ signs of clinical improvement AND
- ◆ assumed absence of drug-resistant TB

Isolation precautions should be retained for the duration of the stay in the health care facility or until cultures are negative, if the patient :

- has pulmonary or laryngeal MDR-TB OR
- does not respond to treatment OR

- initially responds and then redevelops signs suggestive of active TB.

SUMMARY

Isolation criteria for individuals with Suspected Infectious T.B.

INDIVIDUALS WHOLLY RESIDENT IN MALTA FOR THE PAST 2 YEARS:

- chest radiograph suggestive of active TB
AND
- **TWO** or more of the following criteria:
 - ◆ chronic cough (over 4 weeks' duration);
 - ◆ fever (longer than 4 weeks);
 - ◆ weight loss;

INDIVIDUALS RESIDENT ABROAD FOR THREE MONTHS OR MORE IN THE PAST 2 YEARS

- **THREE** or more of the following criteria:
 - ◆ chest radiograph suggestive of active TB
 - ◆ chronic cough (over 4 weeks' duration);
 - ◆ fever (longer than 4 weeks);
 - ◆ weight loss

A sputum specimen for ZN stain **MUST** be sent to the Bacteriology Laboratory within 24 hours of admission - such specimens must be treated as urgent and processed immediately.