



New York State
Department of Health
Bureau of Emergency Medical Services

POLICY STATEMENT

Supercedes/Updates:

No. 92-02

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Re: Tuberculosis

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The incidence of tuberculosis (TB) has increased substantially in the last few years. EMS providers should be aware of this infectious disease and the procedures for protecting themselves.

As with all infectious diseases, no precaution is 100% effective; rather, these precautions are designed to reduce the probability that the disease can be transmitted from person to person.

TB is spread when small droplets from the respiratory tract of an infected person enter the air and are inhaled by another person. Precautions can be taken in three areas to reduce the danger.

First, the patient's mouth should be covered with a mask. A disposable micron surgical mask (#M "Aseptix" sub-micron molded surgical mask, Catalog #1812; or equivalent) is best, but a standard surgical mask or even an oxygen mask is helpful. The nature of the medical treatment required by the patient should determine which mask is used.

Second, a disposable micron mask or disposable particulate respirator (PR), should be worn by the provider. It should fit snugly on the face. A beard or mustache will markedly reduce the effectiveness of such protection.

Third, the number of infectious droplets in the air can be reduced by ensuring good ventilation in the patient compartment of the ambulance. Thus, the ventilation system should be maximized and/or side windows opened to provide a steady source of clean air.

Which patients should receive respiratory precautions?

Patients with respiratory symptoms of more than 2 weeks duration or any patient with a respiratory symptom of any duration who is a member of a higher risk group. The CDC defines high risk groups as follows:*

- Alcoholics
- IV drug users
- Contacts of patients known to have active TB
- Low income populations
- Prisoners
- HIV infected persons
- Nursing home residents
- Refugees

Persons with other pre-existing medical conditions which compromise the ability to fight infection are also at increased risk. Such conditions include:

- Chemotherapy
- Diabetes
- Steroid Therapy
- Renal failure
- Some cancers

(source: CDC)

Clearly, TB patients receiving nebulized aerosols of Beta-agonists are likely to spread infectious droplets. In such patients, as well as those presenting with respiratory symptoms such as a persistent cough, special attention should be given to these precautions by EMS providers.

Since air-borne droplet spread is the only means of TB transmission, there is no need to decontaminate or disinfect the ambulance or equipment.

The following sections from the CDC Mortality and Morbidity Weekly Report (December 7, 1990) summarize the CDC recommendations for control of TB in pre-hospital settings:

1. Other source-control methods

A simple but important source-control technique is for infectious patients to cover all coughs and sneezes with a tissue, thus containing most liquid drops and droplets before evaporation can occur. A patient's use of a properly fitted surgical mask or disposable, valveless particulate respirator (PR) (see below) also may reduce the spread of infectious particles. However since the device would need to be worn constantly for the protection of others, it would be practical in only very limited circumstances (e.g., when a patient is being transported within a medical facility or between facilities).

2. For persons exposed to tuberculosis patients.

Appropriate masks, when worn by health-care providers or other persons who must share air space with a patient who has infectious tuberculosis, may provide additional protection against tuberculosis transmission. Standard surgical masks may not be effective in preventing inhalation of droplet nuclei, because some are not designed to provide a tight face seal and to filter out particulates in the droplet nuclei size range (1-5 microns). A better alternative is the disposable PR. PRs were originally developed for industrial use to protect workers. Although the appearance and comfort of PRs may be similar to that of cup-shaped surgical masks, they provide a better facial fit and better filtration capability. However, the efficacy of PRs in protecting susceptible persons from infection with tuberculosis has not been demonstrated.

PRs may be most beneficial in the following situations:

a) when appropriate ventilation is not available and the patient's signs and symptoms suggest a high potential for infectiousness, b) when the patient is potentially infectious and is undergoing a procedure that is likely to produce bursts of aerosolized infectious particles or to result in copious coughing or sputum production, regardless of whether appropriate ventilation is in place, and c) when the patient is potentially infectious, has a productive cough, and is unable or unwilling to cover cough.

Comfort influences the acceptability of PRs. Generally, the more efficient the PRs, the greater is the work of breathing through them and the greater the perceived discomfort. A proper fit is vital to protect against inhaling droplet nuclei. When gaps are present, air will preferentially flow through the gaps, allowing the PR to function more like a funnel than a filter, thus providing virtually no protection.

3. For tuberculosis patients.

Masks or PRs worn by patients with suspected or confirmed tuberculosis may be useful in selected circumstances (see below). PRs used by patients should be valveless. Some PRs have valves to release expired air, and these would not be appropriate for patients to use.

4. Emergency medical services

When emergency-medical-response personnel or others must transport patients with confirmed or suspected active tuberculosis, a mask or valveless PR should be fitted on the patient. If this is not possible, the worker should wear a PR (see above). If feasible, the rear windows of the vehicle should be kept open and the heating and air conditioning system be set on a nonrecirculating cycle.

Emergency-response personnel should be routinely screened for tuberculosis at regular intervals. They should also be included in the follow-up of contacts of a patient with infectious tuberculosis.

(End of CDC recommendations).

Treatment of Exposed Providers

PPD testing should be conducted for pre-hospital providers who are exposed to TB patients for whom adequate infection control measures (outlined above) were not taken. Unless a negative skin test has been documented within the preceding three months, each exposed worker (except those who are already known to be positive reactors) should receive a PPD (Mantoux) skin test as soon as possible.

If the skin test is negative, the test should be repeated within twelve weeks after the exposure ended.

Persons with skin test reaction of 5mm induration (swelling) or greater, or with symptoms suggestive of active TB, should receive chest x-ray examinations.

Persons with previously known positive skin test reactions who have been exposed to an infectious patient should be evaluated for active TB, but do not require a repeat skin test or a chest x-ray examination, unless they have symptoms suggestive of active TB.

Optimally, arrangements for treatment should be made by each agency in advance of an exposure. Possible sources of care include: personal physician, receiving hospitals or County Health Departments.

*Core Curriculum on Tuberculosis; Centers for Disease Control, April 1991: p. 11

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