

# The Need For Medical And Paramedical Staff To Use Masks In Order To Prevent The Nosocomial Transmission Of Tuberculosis

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## Abstract

Tuberculosis has emerged as the greatest danger to India threatening the health of millions. Since TB is ubiquitous and contagious, hospital staff and others in close contact with tuberculosis patients run the highest risk of infection. This risk is largely preventable by use of simple inexpensive measures to avoid the contagion to spread via droplets. Even though health care workers are well aware of the mode of spread of tuberculosis, they do not take precautionary measures while dealing with TB patients. Patients too are non compliant with doctors' advice of wearing masks for protection of people in the vicinity. Thus, extensive use of masks enforced by the administration will greatly reduce the transmission of tuberculosis. This may be achieved if disposable masks are made available free of cost from dispensers along with condoms under a national programme thus helping us tackle the two leading diseases of the country.

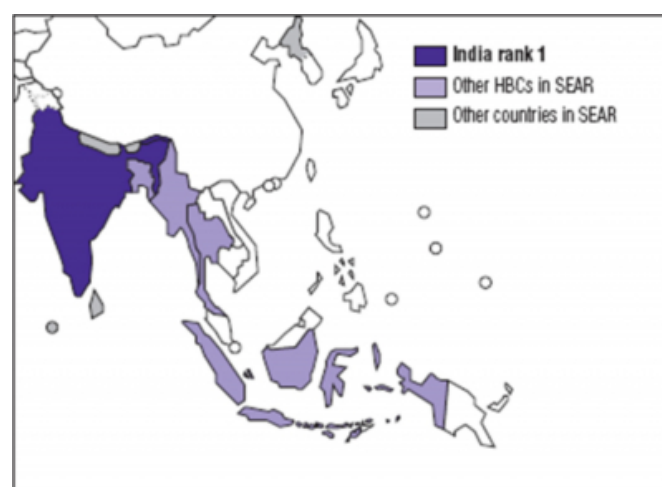
## INTRODUCTION

The Need For Medical And Paramedical Staff To Use Masks In Order To Prevent The Nosocomial Transmission Of Tuberculosis

India is a country in which a wide variety of health related subjects are discussed. However one issue which is hardly talked about is that of creating a strict policy regarding the use of masks to prevent the nosocomial transmission of tuberculosis. The foundation of the crisis lies in the attitude with which people view this epidemic.

Tuberculosis is the one of the most rampant infectious disease in India and accounts for one fifth of the world's incident TB cases; the reported incidence in 2003 was 168 per 100,000. Every year, TB develops in nearly 2 million persons in India, and nearly 1 million cases are smear positive; an estimated 40% of the Indian population is latently infected with *M. tuberculosis*. (1)

Figure 1



Source: WHO-SEAR

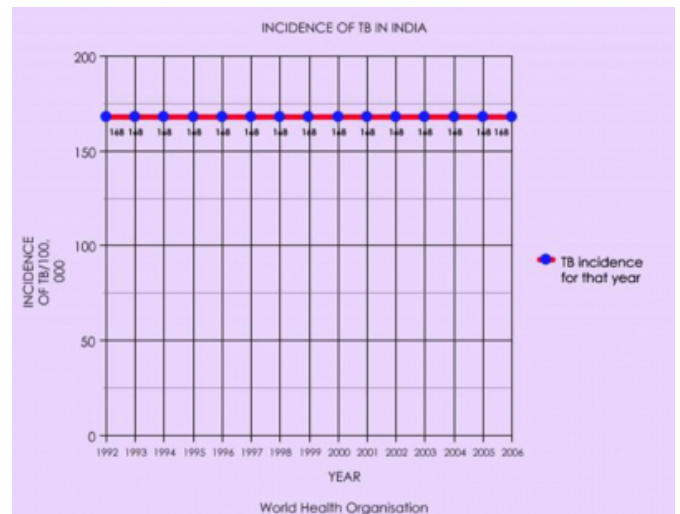
There runs an enormous risk of nosocomial transmission of tuberculosis in our country, in both government as well as private set-ups. This is a fact that cannot and should not be underestimated. This risk concerns not only the patient's immediate family, but also, other patients who breathe in the same environment, patients' relatives and visitors, doctors, nurses, students, ward boys, cleaners and social workers, all of whom are in close proximity with the patient and are at a high risk of being infected. This is due to a multitude of

factors which include:

- Alarming numbers of TB patients and higher risk of repeated exposure of the general population to smear-positive tuberculosis patients
- Close proximity of TB patients with other susceptible and vulnerable patients such as those with cancers or HIV
- Lack of personal protection equipment (e.g., respirators, masks)
- Scarce facilities for isolation of tuberculosis patients infected with MDR or XDR strains
- Lack of engineering control measures due to inadequacy of funds in government hospitals where a huge number of TB patients are being treated daily (same as the point below)
- Overcrowded hospital wards and outpatient departments
- Poorly ventilated wards and rooms
- Lack of adequate sunlight in hospital wards

The WHO has recommended various engineering, administrative, and personal protection measures in order to reduce the risk of transmission which are currently being implemented in many countries. However, the use of all such measures cannot be supported as a priority in India due to the inadequacy of resources and an oversized population. Thus, WHO has proposed practical and low-cost interventions to reduce nosocomial transmission. These recommendations emphasize prompt diagnosis and rapid treatment of TB, along with the use of masks during the infective period rather than expensive technologies, such as isolation rooms and respirators. However, despite the availability of cheaper alternatives, compliance remains low in India.

**Figure 2**



(graph 1: Source : World Health Organisation)

The above graph shows the incidence of tuberculosis in India per 100,000 population as given by the World Health Organisation (WHO). This graph presents a very significant finding that, even after large scale infrastructure adjustments and implementation of national level programs and policies i.e. Revised National Tuberculosis Control Program (RNTCP- est.1992) and DOTS, the incidence of TB has remained consistent throughout the years.

This shows the desperate need of the country to introduce an easily implementable low cost intervention i.e. high quality low cost masks which can drastically reduce transmission and thus reduce the occurrence of new cases of tuberculosis in the first place by simply targeting it at its grass-root level.

The normal belief is that only doctors are infected by nosocomial tuberculosis simply because they are the most prominent figure of the health care setting. However, technicians and nurses are constantly exposed to the hospital environment which puts them at a higher risk of obtaining the infections as compared to doctors. For example, right from the sputum collection to laboratory culture to drug administration by DOTS agents and working in wards, particularly TB/CHEST and follow up, it is our hospital technicians, nurses, social workers and paramedical workers who bear the brunt of nosocomial transmission.

Of special concern is the fact that in teaching hospitals, students in particular are highly susceptible, as a result of the long duration of time that they spend within the wards in direct contact with active TB patients. Moreover, they are

encouraged to elicit certain physical signs as a method of their practical learning which can further aggravate the risk. What's even more distressing is that certain students who choose to make use of precautionary measures such as wearing masks or gloves are scorned at by senior doctors or ward nurses!

On the other hand, new TB patients start off by wearing masks and being compliant with doctor's instructions. Soon, they become indifferent due to the long period of time for which they are advised to wear the mask. They gradually become uncomfortable with the entire concept and feel that, if everyone in the "quarantined" TB ward already has TB, it doesn't really matter. This may result in the spread of MDR/XDR TB to drug sensitive smear positive patients and those with other non-TB respiratory diseases who have been recently admitted in the same ward. The poor ventilation in these wards further encourages spread of the disease. Also there exists a unanimous feeling of being discriminated against, besides the recurrent expenditure which might influence their decision to wear a mask which in any case is of sub standard quality.

A visit to any government or municipal hospital provides a clear picture of the risks faced by hospital staff. If this is the state of affairs in tertiary care centers, how can we expect a sterile environment in secondary and primary health care centers, not to mention the lack of education and hygiene practices in the rural periphery.

On that note, we would like to share a personal experience here:

Rajiv Hira - "As part of my practical examination in Community medicine as a Third Year student, I was allotted two patients of active pulmonary TB (who could not be identified as pulmonary TB since they were not wearing masks) and a patient of TB meningitis in the third case, these being on three separate occasions. At no time during these examinations, was I warned to wear a mask. Even if I had known, I may not have gone to the hospital pharmacy to buy the masks due to the loss of time to examine my patient. Later, I was told that one of these patients was MDR-TB and that I should get a sputum smear examination done. Although the results came back negative I was left emotionally distressed. All these factors come together and affect a student's state of mind during and after the examination, some of which can have very significant consequences in a student's life and career. I personally feel

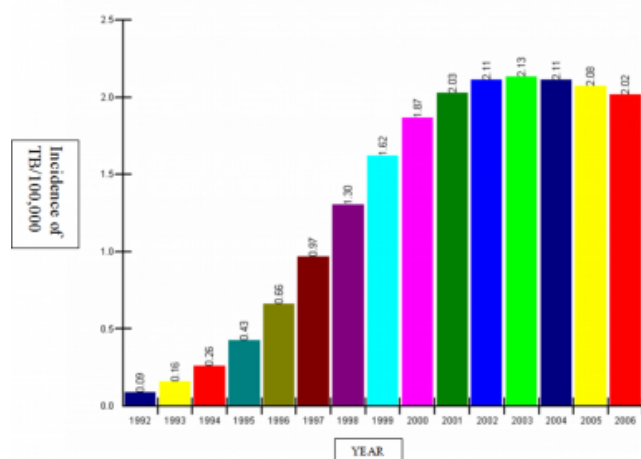
that, we should have certain preventive and precautionary measures in place which protect the students while at the same time testing their clinical knowledge and skills fairly." This raises ethical questions on the administration of the medical college that puts its students at avoidable risk.

## **WHAT NEEDS TO BE DONE**

- In order to effectively reduce the risk of transmission, it is important that we adopt a more proactive approach. One such measure involves the use of **HIGH QUALITY LOW COST MASKS**.
- Masks should be made available more widely and easily in all parts of the hospital and not merely in pharmacies, and at a cost affordable to all. This will enhance its usage among all those involved in treating tuberculosis patients, as well as patients themselves.
- In many tertiary care centers, dispensers which store condoms are now being made available to ensure their wider usage as an endeavor to reduce the risk of transmission of HIV and other sexually transmitted diseases. So why not have dispensers storing disposable masks? Or better still, a **DUAL** approach could be taken to tackle TB along with HIV. These condom dispensers should have another compartment to store and dispense disposable masks. This measure would be cost effective and should be implemented at a national level. This also deals with the major problem of TB affecting and leading to a very high mortality among HIV positive patients.

Incidence of TB in HIV positive Patients in India/100,000 population.

**Figure 3**



(graph 2 : Source : World Health Organisation)

The major cause of death in HIV positive patients is infection with Tuberculosis (2). Graph 2 shows the incidence of TB in HIV positive patients in India per 100,000 population. It shows a steadily increasing incidence with each progressing year. Thus, the DUAL approach will not only prevent the spread of TB, but it also has national level benefits in terms of reducing the number of deaths of HIV positive patients from tuberculosis and thus increasing their life span in addition to making the national programme more effective.

- The percentage of India's GNP allocated to health care is a mere 0.9%. This is an extremely low number for a country that holds the second largest population in the world. Even a slight increase from 0.9% to 1.1% would provide enough capital to supply the nation with FREE disposable masks for each and every one of our patients and health care workers. If we can provide free medical treatment for tuberculosis under DOTS, supplying complimentary masks envisages a more economical approach to decrease the morbidity attributed to tuberculosis in the country. This would increase the overall productivity of the

nation resulting in a better economy and finally the capital spent in this intervention would be recovered.

- Existing hospitals, secondary and primary health care centers should be equipped with special areas which must be utilized as isolated TB wards. Within these wards, each patient should be at a safe distance from other patients and visitors should not be permitted entry. Sections should be cornered off for MDR/XDR TB patients to protect other susceptible patients from getting this strain. This would save billions of dollars in drug research to find newer drugs to treat MDR/XDR strain of M. Tuberculosis.
- Students and Doctors should not be allowed to wear these masks for more than 15 to 20 minutes during routine rounds in these wards, since beyond a certain time, masks tend to become less effective. Doctors should follow these rules and strictly implement this policy for students and paramedical staff in order to effectively curb the spread of TB.
- Due to limited infrastructure and meager resources, the most feasible approach to ensure proper usage of masks would be through the training of DOTS agents, who must keep a constant and strict vigil over patients and health care workers at all times.
- All this needs to be reinforced by proper healthcare administration along with a nation-wide commitment is to stop the transmission of tuberculosis.

**WEAR A MASK—SAVE ALL NATIONS!**

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