Today, many medical practitioners consider the disease of tuberculosis to belong to another era. Many young physicians have neither diagnosed nor treated a case of TB. This infectious disease caused by the organism *Mycobacterium tuberculosis*, is alive, well and re-emerging as a significant cause of morbidity and death. Statistics recently quoted in a 1992 supplement to the "Morbidity and Mortality Weekly Report" should dispel the notion that this is an illness of Victorian novels whose heroines expired from "consumption". In the United States in 1990, 25,701 cases of TB were reported. This was an increase of 9.4% over the cases reported in 1989 and a 15.5% increase over 1984.

**Tuberculosis control program**

There are two essential factors for rapid spread of tuberculosis--crowded living conditions favoring airborne spread of infection and a population with little native resistance. Once you have been on a submarine, an amphibious ship, an aircraft carrier or in a field encampment, you will quickly appreciate that exposure to "crowded living conditions" is a regular feature of military life. While you, the FMF medical officer, cannot control the crowding, you can reduce the potential for transmission of tuberculosis by having a well-run Tuberculosis Control Program.

The instruction which explains the management of the TB program for the Navy and Marine Corps is NAVMEDCOMINST 6224.1 of 22 October 1986. This instruction is under revision and will be reissued in the form of a BUMEDINST 6224.8 (proposed) in the near future. Until the new instruction is issued the previous instruction is in effect. However, you should be aware that modifications to the old instruction have been done in the form of messages. The chief problem with message modifications is that not everyone who needs the information gets the information. Even your trusty Preventive Medicine Technician (PMT) may not be up-to-date on the most recent changes. Your best source of the most current information on the program is the Navy Environmental and Preventive Medicine Unit nearest you.

If you have a patient that presents you with any management dilemmas, it is recommended that you call the Epidemiology Department at one of the units for assistance. The phone numbers of the four units are as follows:

NEPMU-2, Norfolk, VA  
(DSN) 564-7671  
(804) 444-7671  
(804) 444-1191 (fax)
Case presentation
The potential for spread of this disease in a confined space is illustrated by the recent case of a Marine who did not receive the appropriate follow-up for a positive PPD. The following report is excerpted from an article written by CAPT E. K. Ledbetter which appeared in the Pacific Health Bulletin, No. 44, Feb 1992. "'Somewhere' in the Pacific theater, a young Marine was PPD skin-test positive in 1989, but was not placed on the required prophylaxis for PPD reactors. He was seen at his BAS in CONUS in January 1990 for a bad cough, and again in October 1990 for chest pain. He deployed in November 1990 to Southwest Asia aboard ship without review of his untreated PPD positive status. In January 1991 he was seen at sickbay with symptoms that included cough and vomiting, and a 17 pound weight loss; CXR revealed cavitary lesions consistent with tuberculosis, and his sputum smear was positive for acid fast bacilli..." Finally, he was begun on INH and rifampin, but cultures were not obtained (possibly due to limitations imposed by the operational setting). The patient was seen in February, March, and May of 1991. His health record entry read "one month follow-up and INH refill for PPD conversion."

Q: At this point, was this patient being properly managed?

A: No! The health record entry indicates that he was being treated as a PPD converter and not as an active case of TB.

In June, after review of his case at a Pulmonary Medicine clinic led to obtaining cultures that were positive for *M. tuberculosis* and sensitive to all drugs, he was admitted to the hospital and restarted on medications. Because he had a record of sporadic compliance he was given his medication under direct supervision. He completed treatment in January 1992 with resolution of his symptoms and lung abnormalities seen on x-ray.

This Marine's active case of TB required that a contact investigation be performed. Guidance for doing such an investigation is contained in enclosure 3 of the TB instruction. Personnel from the
patient's berthing area were skin tested. Of the 279 persons tested, 66 were positive resulting in a conversion rate of 23.7%. (When the rate of newly-identified reactors is greater than 2.5% among any group tested, it is a strong indication that an active case of TB is present.) Imagine the cost, the aggravation and the potential for morbidity in the treatment of this large group of converters. If all of the reactors from this scenario were treated for the minimum six month period, thirty-three man-years of medication would be required!

As the investigation branched out beyond the berthing area of the index case, other reactors were identified. Another active case (probable secondary case) was diagnosed on 31 July 1991. This patient was berthed in the compartment adjacent to the index case. A possible connection existed between the two active cases because the index case, a Marine, worked in the weight room as an attendant. The secondary case worked out in the weight room on a daily basis, but since he was a Navy E-3 it is reported that he did not have much contact with index case, because training times were segregated for Navy and Marine Corps personnel. In the 20/20 hindsight mode, it would have been helpful to know how many of the reactors were also weight lifters.

In this case, as with most cases involving large numbers, not everyone who was closely associated with the patients was found and tested because of transfers and difficulties with follow-up.

**Related preventive issues**

Infection with the human immunodeficiency virus (HIV) increases the risk of acquiring an active case of TB. When an active case of TB is diagnosed, the patient should also be tested for HIV. Conversely, when a patient is diagnosed as HIV positive, he should be tested for TB. Remember:

**If TB, check HIV!**
**If HIV, check TB!**

Both of these diseases must be controlled; first through prevention, but failing that, through early identification.