WARNING

WARNING ON A NEW POTENTIAL FOR LABORATORY-ACQUIRED INFECTIONS AS A RESULT OF THE NEW NOMENCLATURE FOR THE PLAGUE BACILLUS*

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The new name for the plague bacillus (formerly "Yersinia pestis") is Y. pseudotuberculosis subsp. pestis, while the pseudotuberculosis bacillus is named Y. pseudotuberculosis subsp. pseudotuberculosis. Any tendency to abbreviate these names on labels of cultures, especially by omitting the subspecies epithet, must be avoided because of the risk of confusion between the dangerous plague organism and the pseudotuberculosis bacillus.

The New Nomenclature

In 1980–81, new scientific names were proposed (1) and validly published** (2) for the etiologic agents of plague and pseudotuberculosis to indicate the close relationship between these microorganisms. The new names are Yersinia pseudotuberculosis subsp. pestis, to replace "Yersinia pestis" for the plague bacillus, and Yersinia pseudotuberculosis subsp. pseudotuberculosis, to replace "Yersinia pseudotuberculosis" for the pseudotuberculosis bacillus.

The new nomenclature has not been widely used, as yet. However, the Bulletin of the World Health Organization, in keeping with editorial policy which favours using the most recent valid name for bacteria, employed this nomenclature in recent articles on plague (3, 4). Usage of the new names will undoubtedly increase.

Elimination of Risks

Personnel working in public health units, clinical laboratories and research institutions need to be informed of the new nomenclature and reminded of the different biohazards that Y. pseudotuberculosis subsp. pestis and Y. pseudotuber-

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** Valid bacterial names are those included in the Approved lists of bacterial names of the International Committee on Systematic Bacteriology and those of new and revived taxa published in the International journal of systematic bacteriology after 1 January, 1980.
culosis subsp. pseudotuberculosis present to their own well-being and to the public. Workers unfamiliar with the new names might easily mistake cultures of the plague bacillus for cultures of the pseudotuberculosis bacillus. In addition, laboratory workers must be warned to utilize extreme care when reading labels on cultures and when preparing labels for cultures. Any tendency to abbreviate these new names by omission of the subspecies epithet would be particularly dangerous and must be avoided.

Several precautionary measures might help to reduce the potential for accidental infections from use of the new nomenclature. The name Yersinia pseudotuberculosis subsp. pestis is less efficient for alerting personnel against the hazard of plague than the former name, "Yersinia pestis". Cultures and shipping containers labelled Yersinia pseudotuberculosis subsp. pestis should also include a conspicuously displayed warning, such as "INFECTIONOUS SUBSTANCE", and the international warning symbol denoting an infectious substance. Cultures labelled "Yersinia pseudotuberculosis" (i.e., no subspecies epithet) should be considered of questionable identity, especially when received from plague-endemic regions. Such cultures should be handled in a manner that ensures the safety of laboratory personnel and prevents discharge of potentially dangerous bacilli into the environment*. Simple tests can be performed that will usually distinguish strains of the plague bacillus from strains of the pseudotuberculosis bacillus (5). For example, the latter shows motility at temperatures below 28 C, while the former shows no movement at any temperature; thus, liquid broth cultures of Y. pseudotuberculosis subsp. pseudotuberculosis incubated at 20 C will exhibit turbidity, while broths of Y. pseudotuberculosis subsp. pestis will not do so, unless contaminated with a motile organism (e.g., Escherichia coli). Cultures suspected of containing the plague organism should be sent to a plague reference laboratory for evaluation (6).

The risk of plague associated with use of the new nomenclature is greatest for researchers and their assistants, graduate students and, to lesser degrees, clinical laboratory technicians, veterinary students, medical staff and medical students. Inhalation of bacilli in aerosols generated by opening or working with mislabelled or misidentified culture tubes could cause infection. Laboratory-acquired plague has a mortality rate of about 40% (7) and constitutes a public health emergency due to the threat of pneumonic disease and person-to-person droplet transmission. Probably the most effective preventive measure is the warning on all labels, mentioned above. In addition, the national public health authorities, in the interests of protecting the public from such accidental plague infections, should request all laboratories (in hospitals or private) that now handle these organisms to provide facilities at the appropriate containment level** for all investigations of both Yersinia pseudotuberculosis subspecies.

* It should be noted that, in exceptional cases, pulmonary infections and septicaemias due to Y. pseudotuberculosis subsp. pseudotuberculosis can be as serious as those caused by the plague bacillus.

** Laboratories of the appropriate level are identified as "containment" (by WHO), "P3" (in the USA), or "category B" (in the United Kingdom).
REFERENCES