toxicity, no antidiphtheria serum was administered. The patient became well and was discharged on day 4.

In the first case, a throat culture could not be done because the patient had already received local antiseptic paint. However, the diagnosis was clinically consistent with classic diphtheria with features of toxicity. In the second case, diphtheria was suspected only after bacteriologic examination. Unlike patient 1, patient 2 had no evident features of systemic toxicity. Hence the isolate could be nontoxigenic. Localized diphtheria due to nontoxigenic *C. diphtheriae* is known to occur (1).

The two patients did not give a complete history of immunization and may not have been vaccinated (or may have been partially vaccinated) with DPT. On the Indian subcontinent, DPT vaccination coverage is reported to be 80%. However, it may not be so in all areas, and immunization may have decreased to approximately 50% in certain areas of Southeast Asia (2). This may also be true in certain areas of eastern Nepal. An immunization status survey done in midwestern Nepal from 1989 to 1990 showed that DPT coverage was unsatisfactory (3). Lack of sustained immunization may even result in outbreaks. The recent epidemics of diphtheria in the Ukraine, Russian Federation, and other countries of the former Soviet Union are examples of resurgence due to ineffectively maintained immunization programs (4,5).

Diphtheria, still occasionally seen in many Southeast Asian countries including India and Nepal, is thought to be declining in these areas. However, accurate data have not been recently available, particularly from Nepal, because reporting is infrequent, laboratory confirmation is not available, and the extent of carriers is not clearly known (2).

These two cases show the persistence of diphtheria in a population in Nepal immunized with DPT and underscore the need for careful surveillance, laboratory documentation of clinical diphtheria, and increased immunization of children in this area.

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Commercial Use of *Burkholderia cepacia*

To the Editor: In their review of the potential threat to human health by the commercial use of *Burkholderia cepacia*, Holmes et al. (1) focus on the biopesticidal uses of this bacterium in agriculture. By virtue of its ability to antagonize a number of soilborne plant pathogens, *B. cepacia* is an attractive natural alternative to currently used chemical pesticides, such as captan, mancozeb, and metalaxyl. The replacement of these highly toxic agents, which are among the mainstays of crop protection chemicals, by safer products is a laudable goal. However, despite being nonpathogenic to healthy humans (and thus classified as a Biosafety Level 1 species), *B. cepacia* can cause life-threatening pulmonary infection in persons with cystic fibrosis. Holmes et al. call for a moratorium on the use of *B. cepacia* in agriculture until more is known about risks from such use.

Perhaps of greater concern than agricultural use is *B. cepacia*'s use as a bioremedial agent. Holmes et al. only briefly refer to the capacity of this species to degrade chlorinated aromatic substrates such as those found in certain pesticides and herbicides. By virtue of its extraordinary metabolic versatility, *B. cepacia* can use such compounds as nutrient carbon energy sources. In addition, some strains produce enzymes capable of degrading nonnutritive substrates, such as trichloroethyl-

ene (TCE), a major ground water contaminant used in the dry cleaning industry and in degreasing solvents.

The degree to which *B. cepacia* is being used in bioremediation products is unknown; however, the species has been used extensively to degrade ground water TCE contamination in at least one large U.S. city. A number of environment-friendly bioremediation products containing only naturally occurring, nonpathogenic bacteria are being marketed for use in drain opening and grease eradication systems. Because their formulations are proprietary, it is not known if these products contain *B. cepacia*; however, franchises that distribute such totally natural, noncorrosive, nontoxic products specifically target fast-food restaurants, photo processing facilities, and hospital radiology departments.

In the United States, the biopesticidal use of microorganisms such as *B. cepacia* is regulated by the Environmental Protection Agency (EPA) under the Federal Insecticide, Fungicide, and Rodenticide Act; however, the use of naturally occurring, nonpathogenic bacteria as bioremedial agents is essentially unregulated. Only new microorganisms (i.e., intergeneric or formed by combining genetic material from organisms in different genera) are regulated by EPA under the Toxic Substances Control Act (TSCA) (2). Ironically, TSCA regulations provide a strong disincentive to the development of safer microbiologic alternatives for use in bioremediation. For example, although the genetic elements responsible for TCE degradation by *B. cepacia* have been cloned, their recombination into another nonpathogenic bacterial host (e.g., *Escherichia coli*) would constitute a new microorganism, the licensure of which would be considered prohibitively time-consuming and expensive by many companies.

In Canada, biopesticidal uses of microorganisms are regulated by the Pest Management Regulatory Agency of Health Canada, under the Pest Control Products Act (PCPA); bioremedial uses are regulated by Environment Canada under the Canadian Environmental Protection Act (CEPA) (3). Both naturally occurring and genetically engineered microorganisms are strictly controlled under these acts. However, accurate species identification is the cornerstone of all notification of products under the Canadian regulations. This presents a further dilemma. At least five genomovars (discrete species) constitute what has recently been designated the "*B. cepacia* complex" (4). Insofar as the taxonomy of this group is poorly defined, there are no conventional taxonomic designations to distinguish pathogenic from nonpathogenic species. At present, it appears that all five *B. cepacia* genomovars are capable of causing infections in vulnerable persons (4).

Because the epidemiology of *B. cepacia* complex infection in humans is incompletely understood, the threat posed by the inclusion of this species in biopesticides and bioremedial products is difficult to quantify. However, we agree with Holmes et al. that such use should be approached with considerable caution. In a broader context, the commercial use of *B. cepacia* illustrates our incomplete understanding of nonpathogenic bacteria and their potential to cause human disease. Regulations governing the use of microorganisms in industry must constantly adapt to keep pace with the emergence of infections due to nonpathogens and limit risk to human health.

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Human Rabies in Israel

To the Editor: Rabies, a major zoonotic disease in the Middle East, has two main epidemiologic forms: urban and sylvatic. The last case of