Rhodococcus equi is found in soil and carried in the intestinal tracts of horses. It is a facultative intracellular pathogen that resists phagocytosis as well as intracellular killing by macrophages. It causes an insidious, progressive chronic suppurative bronchopneumonia with abscessation in foals. It is one of the most important diseases in foals less than 6 months of age. It was first reported to cause disease in horses in the 1920s and in humans in the 1960s (1). R. equi is an opportunistic pathogen contracted primarily by inhalation of dust. The majority of human cases occur in immunocompromised individuals, especially those infected with the human immunodeficiency virus. Despite antibiotic therapy for patients with AIDS, frequent relapses occur during the course of the disease (2, 4).

Erythromycin and rifampin (initially) therapy for 4 to 9 weeks has become the treatment of choice for foals (5, 6). However, due to cost, clinicians and owners of affected animals are interested in a less costly therapy, and if possible monotherapy, to treat foals. There are limited antimicrobial agents approved for use with animals to treat bacterial infections. Antimicrobial agents approved to treat respiratory infections in livestock are often used in horses. Currently, antimicrobial agents used to treat respiratory disease in livestock include enrofloxacin, sarafloxacin, ceftiofur, tetracycline, florfenicol, and tilmicosin. Premafloxacin, an extended-spectrum 4-quinolone, has previously been shown to have superior in vitro activity against gram-positive cocci compared with other fluoroquinolones (14).

Eperezolid and linezolid are representatives of a new class of orally active, synthetic antimicrobial agents, the oxazolidinones. The oxazolidinones are most active against gram-positive organisms including methicillin-resistant Staphylococcus aureus, vancomycin-resistant Enterococcus spp., and Streptococcus spp. The in vitro activity of these compounds against a variety of bacterial isolates from horses as well as animals has been well documented (5–8, 13, 15; S. A. Salmon, J. L. Watts, C. A. Case, and C. W. Ford, Abstr. 98th Gen. Meet. Am. Soc. Microbiol., abstr. A-2, p. 38, 1998; J. L. Watts, S. A. Salmon, R. J. Yancey, Jr., and C. W. Ford, Abstr. 35th Intersci. Conf. Antimicrob. Agents Chemother., abstr. F220, p. 151, 1995). However, there are limited data on the in vitro activity of antimicrobial agents against R. equi, including no data on the activity of oxazolidinones against R. equi. The objective of this study was to determine the MICs of linezolid, eperezolid, premafloxacin, and several comparator antimicrobial agents against strains of R. equi isolated from humans and animals.

(R. equi strains used in this study were from the Pharmacia & Upjohn Animal Health Discovery Research culture collection (Kalamazoo, Mich.). All strains used in this study were identified as the primary cause of infection in the patients. Identification was confirmed by Gram stain reaction, microscopic and colonial morphology, growth characteristics, source of specimen, and a synergistic hemolysis test using Corynebacterium pseudotuberculosis, according to protocols described previously (12). In some cases, biochemical profiles using the API Rapid CORYNE test (bioMerieux Vitek, Inc., Hazelwood, Mo.) and cellular fatty acid analysis using the Microbial Identification System (MIDI, Inc., Newark, Del.) were used to confirm isolate identification.

Thirty-six strains were obtained from human sources, and 66 were obtained from equine sources. In addition to the test strains, the following National Committee for Clinical Laboratory Standards (10) recommended quality control strains were also tested: S. aureus ATCC 29213, Enterococcus faecalis ATCC 29212, Escherichia coli ATCC 25922, and Pseudomonas aeruginosa ATCC 27853. All bacterial isolates were stored in 1.0 ml of Trypticase soy broth (Difco, Detroit, Mich.) supplemented with 10% glycerol at −70°C until tested. Isolates were revived onto freshly prepared blood agar base supplemented with 5% sheep blood. Plates were streaked for isolation and incubated at 37°C in 5% CO2 for 18 to 24 h. The isolates grown in this manner were then used as the inoculum for MIC determination.

The following antimicrobial agents were tested: eperezolid, linezolid, and premafloxacin (Pharmacia & Upjohn); enrofloxacin (Bayer Animal Health, Shawnee Mission, Kans.); sarafloxacin (Abbott Laboratories, North Chicago, Ill.); danofloxacin (Pfizer Animal Health, Groton, Conn.); ceftiofur (Pharmacia & Upjohn); tetracycline (Sigma Chemical Company, St. Louis, Mo.); florfenicol (Schering-Plough Animal Health, Kenilworth, N.J.); and tilmicosin (Eli Lilly and Com-
activity was in contrast to previously reported data for these species of these unusual bacteria. In no way was 0.5–2.0 and 2.0 μg/ml, respectively (5). Florfenicol, a chloramphenicol derivative, and tilmicosin, a functional analog of tetracycline, are antimicrobial agents recently approved for the treatment of bovine respiratory disease. As expected because of their spectrum of activity, florfenicol and tilmicosin exhibited limited activity against the R. equi strains tested (MIC$_{90}$ = 32.0 μg/ml).

In addition to summarizing data for all of the R. equi strains from both human and equine sources, we also summarized data for these sources separately (data not shown). No differences in antimicrobial activity were observed with any of the antimicrobial agents against the R. equi strains from human and equine sources. While one of the strains isolated from humans was known to be of equine origin, no association between the human patient and equine exposure could be made for the remaining 35 strains. In conclusion, linezolid was more active than eperezolid against the R. equi strains tested. Despite this activity, the oxazolidinones are not being considered for development for veterinary applications due to the need in human medicine for novel antimicrobial agents with activity against antibiotic-resistant organisms including vancomycin-resistant enterococci.

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**REFERENCES**


