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References

- Arias CA, Murray BE. *Enterococcus* species, *Streptococcus bovis* group and *Leuconostoc* species. In: Mandell GL, Bennett JE, Dolin R, editors. *Mandell, Douglas and Bennett's principles and practice of infectious diseases*. 7th ed. Philadelphia: Elsevier; 2010. p. 2643–53.
- Ruiz-Garbajosa P, Canton R, Pintado V, Coque TM, Willems R, Baquero F, et al. Genetic and phenotypic differences among *Enterococcus faecalis* clones from intestinal colonisation and invasive disease. *Clin Microbiol Infect*. 2006;12:1193–8. doi:10.1111/j.1469-0691.2006.01533.x
- Larsen J, Schönheyder HC, Lester CH, Olsen SS, Porsbo LJ, Garcia-Migura L, et al. Porcine-origin gentamicin-resistant *Enterococcus faecalis* in humans, Denmark. *Emerg Infect Dis*. 2010;16:682–4.
- Li JS, Sexton DJ, Mick N, Nettles R, Fowler VG Jr, Ryan T, et al. Proposed modifications to the Duke criteria for the diagnosis of infective endocarditis. *Clin Infect Dis*. 2000;30:633–8. doi:10.1086/313753
- Naimi TS, LeDell KH, Boxrud DJ, Groom AV, Steward CD, Johnson SK, et al. Epidemiology and clonality of community-acquired methicillin-resistant *Staphylococcus aureus* in Minnesota, 1996–1998. *Clin Infect Dis*. 2001;33:990–6. doi:10.1086/322693
- Ruiz-Garbajosa P, Bonten MJ, Robinson DA, Top J, Nallapareddy SR, Torres C, et al. Multilocus sequence typing scheme for *Enterococcus faecalis* reveals hospital-adapted genetic complexes in a background of high rates of recombination. *J Clin Microbiol*. 2006;44:2220–8. doi:10.1128/JCM.02596-05
- Shankar N, Baghdayan AS, Willems R, Hammerum AM, Jensen LB. Presence of pathogenicity island genes in *Enterococcus faecalis* isolates from pigs in Denmark. *J Clin Microbiol*. 2006;44:4200–3. doi:10.1128/JCM.01218-06
- Mohamed JA, Huang W, Nallapareddy SR, Teng F, Murray BE. Influence of origin of isolates, especially endocarditis isolates, and various genes on biofilm formation by *Enterococcus faecalis*. *Infect Immun*. 2004;72:3658–63. doi:10.1128/IAI.72.6.3658-3663.2004
- Tsigrelis C, Singh KV, Coutinho TD, Murray BE, Baddour LM. Vancomycin-resistant *Enterococcus faecalis* endocarditis: linezolid failure and strain characterization of virulence factors. *J Clin Microbiol*. 2007;45:631–5. Epub 2006 Dec 20. doi:10.1128/JCM.02188-06
- Clinical and Laboratory Standards Institute. Performance standards for antimicrobial susceptibility testing: twenty-first informational supplement M100-S21. Wayne (PA): The Institute; 2011.

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West Nile Fever Outbreak in Horses and Humans, Spain, 2010

To the Editor: *West Nile virus* (WNV) is a member of the genus *Flavivirus* within the Japanese encephalitis antigenic complex. The enzootic virus cycle involves transmission between avian hosts and ornithophilic mosquitoes, whereas humans and horses are considered

dead-end hosts. Given the recent increase of WNV infection in humans and horses in Europe, concern has been raised regarding public and animal health.

In Spain, WNV seropositivity has been reported for humans (2001), horses (2005–2008), and wild birds (2007–2008) (1–3). Clinical disease has been described for humans (2004) and raptors (2001–2005) (4,5) but not for horses. We report the main epidemiologic and clinical findings of a WNV outbreak in horses and humans in Spain in 2010.

After the first clinical case of West Nile fever was detected in a horse in September 2010 in Andalusia (southern Spain), a control program for WNV was initiated that included symptomatic treatment of animals, protection of horses in shelters during hours of higher vector activity, vaccination (not mandatory), vector control using pyrethroid-based insecticides, and elimination of mosquito breeding habitats. Horses with neurologic signs were confirmed as WNV positive by detection of serum IgM against WNV by using a competitive ELISA (IDEXX IgM WNV Ab; IDEXX Laboratories, Westbrook, ME, USA). To assess level of WNV infection within affected herds, samples from sick and clinically healthy unvaccinated horses were collected 2 months after the last case. Serum was tested for IgG against WNV by using a blocking ELISA (Ingezim West Nile compac R.10. WNV.K3; Ingenasa, Madrid, Spain). Positivity was confirmed by a serum microneutralization test (SNT) against WNV (strain Eg101) according to World Organisation for Animal Health guidelines. Blood and cerebrospinal fluid samples from clinically affected horses were analyzed by real-time reverse transcription PCR (6).

IgM against WNV was detected in 51 (50%) of 102 clinically ill horses; 15 died and 3 were euthanized. The most common clinical signs were