Colistin resistance in bacteria from animals and humans

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**Sources:**

Main findings from all over the world continue to report the presence of the plasmid-born colistin resistance gene, *mcr-1*, in animals. Recently, a high rate of *mcr-1* producing bacteria was reported on two pig farms in Portugal, highlighting the diffusion of colistin-resistance determinants at the farm level. The fact that the pigs received colistin as metaphylaxis in their food suggests that the high frequency of occurrence of resistant genes is a result of selective pressure.

Kieffer *et al.* prospectively screened 100 pigs at 2 farms in Portugal for polymyxin-resistant *Enterobacteriaceae* and recovered 98 plasmid-mediated *mcr-1*-producing isolates (1). Most isolates corresponded to nonclonally related *E. coli* belonging to many sequence types; they also found two isolates of *mcr-1*-producing *Klebsiella pneumoniae* (1).

Because the number of carbapenem-resistant *Enterobacteriaceae* (CRE), especially *Klebsiella pneumoniae*, has increased at an alarming pace in Portugal, the occurrence of the *mcr-1* gene in CRE isolated from patients admitted to Centro Hospitalar do Porto (Portugal), was evaluated (2). Mendes *et al.* describe a hospital-based (unnoticed) outbreak caused by, *KPC-3*-producing *K. pneumoniae* which were also positive for *mcr-1*. The previous detection of *mcr-1* in livestock, such as *K. pneumoniae* in pigs, suggests transmission through the food chain and wider dispersion of *mcr-1*-producing *Enterobacteriaceae* (2).

The report highlights the possible transfer of *mcr-1* to CRE in the hospital, resulting in extensively drug-resistant isolates. It is therefore essential to continue to monitor and contain the spread of resistance to colistin in CRE across human and veterinary niches, the food chain and the environment.

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