



Factsheet Colistin resistance PIENTER 3 study results

Background

Colistin is a critically important antibiotic for humans. These antibiotics are only used when other antibiotics are not effective anymore. Colistin resistance can be mediated by genes that are easily transferred between bacteria, the so called mobile colistin resistance (*mcr*-) genes. Colistin is also used in veterinary healthcare and *mcr*-genes can also be found in bacteria from animals. Contact with animals might be a risk factor for humans to obtain these resistant bacteria. We have investigated 482 faecal samples from veterinary healthcare workers and compared those to 660 PIENTER3 faecal samples from the open population in order to investigate whether persons working in veterinary healthcare are at higher risk of carrying colistin resistant bacteria with *mcr*-genes. In these faecal samples we searched for colistin resistant bacteria carrying a *mcr*-gene and compared the results from both groups.

Results

Five of the 660 PIENTER3 samples (prevalence 0.8%) harboured colistin resistant bacteria with a *mcr*-gene. Interestingly four of these participants had a migration background from Suriname. The prevalence among veterinary healthcare workers was similar (1/482, 0.2%) compared to the PIENTER3 population (5/660, 0.8%). Molecular characterization resulted in the detection of the *mcr*-8 gene in two isolates from PIENTER3. The other bacterial isolates carried the more commonly found colistin resistance gene *mcr*-1.

Conclusion/discussion

The prevalence of mobile colistin resistance genes is very low among the general population. Veterinary health care workers in the Netherlands are currently not at higher risk of carrying bacteria with mobile colistin resistance mechanisms compared to the general population. This might be explained by the fact that colistin usage is low in animals in the Netherlands. The colistin resistance gene *mcr*-8 was detected for the first time among two humans in the Netherlands. Both persons were first generation immigrants from Suriname.

Publication

[Colistin-resistant Enterobacterales among veterinary healthcare workers and in the Dutch population.](#)

Dierikx CM, Meijs AP, Hengeveld PD, van der Klis FRM, van Vliet J, Gijsbers EF, Rozwandowicz M, van Hoek AHAM, Hendrickx APA, Hordijk J, Van Duijkeren E. JAC Antimicrobial Resistance 2022; 4(2):dlac041.