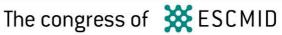


## Amsterdam, Netherlands 13 – 16 April 2019 13 - 16 April 2019



## P1365 High occurrence of mcr-1 among diverse Enterobacteriaceae clones and plasmids in chicken meat alert for potential foodborne transmission of mcr-1 to humans

Sofia Ribeiro<sup>1</sup>, Joana Vanessa Cordeiro Melro Mourão<sup>1</sup>, Joana Campos<sup>1</sup>, Svetlana Ugarcina Perovic<sup>1</sup>, Ângela Novais<sup>1</sup>, Luisa Maria Vieira Peixe<sup>1</sup>, Patricia Antunes\*<sup>1,2</sup>

<sup>1</sup> UCIBIO/REQUIMTE, Laboratório de Microbiologia, Faculdade de Farmácia, Universidade do Porto., <sup>2</sup> Faculdade de Ciências da Nutrição e Alimentação, Universidade do Porto.

Background: Food-producing animals are considered the main reservoir of globally distributed mobile colistin resistance (mcr) genes. In Portugal, one of the European countries with extensive colistin use, mcr-1-producing Enterobacteriaceae has been detected in diverse foodstuffs (pigs/rabbits/turkey) and hospitalized patients. However, the role of poultry-production as a source of mcr genes is clearly underestimated in EU. Here, we investigated mcr occurrence among fresh chicken meat samples, and characterize their genetic background.

Materials/methods: Pooled chicken-meat samples (n=53; neck skin of 10 carcasses from same batch per sample) obtained after slaughter and chilling from 29 Portuguese producers (spring/summer 2018) were analysed. Samples-25g were pre-enriched (37°C/16-18h) in Buffered-Peptone-Water-BPW+colistin (3.5mg/L) and processed using cultural (CHROMagar-Salmonella+colistin and/or CLED-agar+colistin) and molecular approaches. DNA from BPW+colistin and selected colonies (1-5/sample) previously identified by MALDI-TOF MS were screened for mcr-(1-5) genes. Isolates' relatedness was investigated by Fourier-Transform Infrared (FT-IR) spectroscopy, MLST and wzi sequencing for Klebsiella pneumoniae (Kp) or phylogenetic groups (PhG) for Escherichia coli (Ec). Antibiotic susceptibility profiles of mcr-1-positive isolates were determined by disk-diffusion or reference broth microdilution method (colistin). Plasmid characterization (PCR-PBRT/pMLST/sequencing) and location (I-Ceul/S1-PFGE-hybridization) was performed.

**Results:**.A high occurrence of mcr-1 (MIC=4->16mg/L) was detected in chicken meat samples (68%- n=32/53 and 60%-n=36/53 by molecular and cultural approaches, respectively). Ninety MDR Ec isolates from 28 samples (21 poultry-producers) were distinguished in five FT-IR-groups/STs belonging to PhG F or B1. mcr-1 was located in the chromosome (22 samples/1 clone-B1) or 33Kb-IncX4 (6 samples/2 clones B1/F), 260-280Kb-IncHI2 ST2/ST4 (5 samples/2 clones-B1/F) or Incl2 (1 sample/1 clone-F) commonly described plasmids. Sixteen MDR Kp isolates from 7 samples (6 poultry-producers) belonged to one clone wzi23-K14/K23 carrying mcr-1 in 250-280Kb-IncHI2 ST2 plasmid. Four Ec/Kp clonal lineages persisted over time.

**Conclusions:** The high rates of mcr-1 among chicken meat samples from different producers associated with common mcr-1-plasmid types in diverse MDR Enterobacteriaceae highlights poultry-production chain as a major reservoir and a potential source for foodborne transmission of mcr-1 drivers to humans. Strict colistinresistance/mcr monitoring, global re-assessment of colistin use in food-producing animals and alternative food

safety interventions are urgently needed.

29<sup>TH</sup> ECCMID
13-16 APRIL 2019 AMSTERDAM, NETHERLANDS
POWERED BY M-ANAGE.COM