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ESBLs in pig farming in the Netherlands

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Antimicrobial resistant bacteria in livestock are considered an emerging public health concern, due to possible transmission to humans through food or contact with livestock. A recent example is the presence of extended-spectrum beta-lactamase producing bacteria (ESBLs) in poultry (meat). Infections in humans with ESBLs may lead to treatment failure. Little is known about prevalence and dynamics of ESBLs in other production animals (e.g. pigs). This study aims to determine the prevalence and determinants of ESBL carriage in people working or living on pig farms and in pigs. We enrolled 40 Dutch pig farms and analysed per farm 10 pools of 6 faecal swabs each. On 36 farms, 141 farmers, family members and/or employees also submitted a faecal sample for analysis. These samples were analysed for presence of ESBL microorganisms by selective plating and analysis of ESBL genes by means of microarray analysis and gene sequencing. Questionnaires were filled out on antimicrobial use, hygiene, contact with animals and/or meat, farm characteristics, possible confounders, etc. Preliminary results indicate that 13 participants (9%) were positive for ESBL genes. These participants, of whom 8 were farmers, originated from 7 farms where ESBL genes were found, and 3 farms were ESBL genes were not found. In total, on 22 farms (55%) ESBL genes were found in pigs. The ESBL types found included mainly CTX-M-1, commonly found in poultry. This is the first study to determine ESBL presence in people working and/or living on pig farms and in pigs. There are no detailed studies available on ESBL prevalence in the general Dutch population, so a comparison cannot be made. However, a recent study showed ESBL-producing *Escherichia coli* in 6 out of 18 broiler farmers. Preliminary analyses indicated that carriage was associated with intensity of animal contact.