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A Quantitative Microbiological Risk Assessment for Salmonella in Pigs for the European Union - DTU Orbit (08/11/2017)

A Quantitative Microbiological Risk Assessment for Salmonella in Pigs for the European Union

A farm-to-consumption quantitative microbiological risk assessment (QMRA) for Salmonella in pigs in the European Union has been developed for the European Food Safety Authority. The primary aim of the QMRA was to assess the impact of hypothetical reductions of slaughter-pig prevalence and the impact of control measures on the risk of human Salmonella infection. A key consideration during the QMRA development was the characterization of variability between E.U. Member States (MSs), and therefore a generic MS model was developed that accounts for differences in pig production, slaughterhouse practices, and consumption patterns. To demonstrate the parameterization of the model, four case study MSs were selected that illustrate the variability in production of pork meat and products across MSs. For the case study MSs the average probability of illness was estimated to be between 1 in 100,000 and 1 in 10 million servings given consumption of one of the three product types considered (pork cuts, minced meat, and fermented ready-to-eat sausages). Further analyses of the farm-to-consumption QMRA suggest that the vast majority of human risk derives from infected pigs with a high concentration of Salmonella in their feces (≥104 CFU/g). Therefore, it is concluded that interventions should be focused on either decreasing the level of Salmonella in the feces of infected pigs, the introduction of a control step at the abattoir to reduce the transfer of feces to the exterior of the pig, or a control step to reduce the level of Salmonella on the carcass post-evisceration.

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