

# Modelling of Salmonella dynamics in the pig slaughterhouse

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## Abstract

The burden of Salmonella entering pig slaughterhouses across the European Union (EU) is considered to be of public health significance. Therefore, targets will be set for each EU Member State (MS) to reduce the prevalence of Salmonella infection in pigs at slaughter. In order to meet the set target, each MS will need to develop a National Control Plan (NCP). As part of the evidence base for the development of NCPs, a Quantitative Microbiological Risk Assessment (QMRA) was funded under an Article 36 grant to support the scientific opinion required by the EC from the European Food Safety Authority (EFSA) and adopted by the BIOHAZ panel.

This presentation will detail our approach to a quantitative risk assessment for Salmonella in the pig slaughter chain. Attention will be devoted to the microbial processes involved in each of the phases during slaughter (e.g. inactivation, cross-contamination). For each of the microbial processes we describe how to incorporate variability (both over individual carcasses and over slaughterhouses), using the mathematics of recursive relations and Monte Carlo simulations.

We will demonstrate the suitability of such a quantitative model for implementations of interventions in the slaughterhouse environment. Furthermore we present some results, in terms of prevalences and concentrations throughout the slaughter chain, and compare these results to data available from the literature.