**Estimating intervention costs in the chicken meat chain in order to reduce human Campylobacter infections**

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With an estimated disease burden of 1,200 DALYs (Disability Adjusted Live Years) and an estimated cost-of-illness of nearly € 21 million per year, Campylobacter infections are a serious public health and socio-economic problem in the Netherlands (Mangen et al., 2004 & 2005a). A preliminary estimate suggests that chicken is responsible for 40%, at the most, of all human campylobacteriosis (Havelaar et al., 2002). Therefore, within the multi-disciplinary CARMA (Campylobacter Risk Management and Assessment) project it was decided to focus in first instance on evaluation of interventions in the chicken meat chain, one of the major routes. Apart from a farm to fork risk assessment (Katsma et al., 2005; and Nauta et al., 2005) an economic evaluation (Mangen et al., 2005b) is necessary in order to advise decision makers which set(s) of measures might be taken to reduce the exposure to Campylobacter and what their costs are in relation to the expected effects. For more information on the CARMA project see the CARMA website: www.rivm.nl/carma. As a part of the CARMA project, this study focussed on the estimation of the potential costs related to the implementation of various intervention measures to control campylobacters in the chicken meat chain. This paper is only a summary of the intervention cost study. A full description of the intervention cost study can be found in Mangen et al. (2005c). This report is available online at the CARMA website.

Intervention costs were estimated using a second-order stochastic simulation model, with the year 2000 as baseline. To estimate potential losses of broiler farms when implementing an intervention measures, it was necessary to model a baseline, the estimated average labour income for the whole broiler farm sector, in total € 12 million/year. The economic consequences of interventions were then modelled by changing the baseline and comparing the outcome with the baseline outcome. For other interventions, only additional annual costs, recurrent and non-recurrent costs, related to the implementation were considered. Non-recurrent costs (purchase costs and installation and reorganisation costs) are long-lasting investments that were depreciated following standard accounting principles. Under recurrent costs we considered annual maintenance costs, as well as some activity and volume dependent costs that recur with each application. Colonised broilers are not getting ill; consequently a direct benefit for investors was not given. Sensitivity analysis was applied to account for parameter uncertainty.

The lowest treatment costs would be incurred by implementing equipment to reduce the faecal leakage in the processing line, and educational campaign to promote improved kitchen hygiene and home freezing, approximately € 1 million/year/intervention. While irradiation would result in the highest treatment costs of all analysed interventions, more than € 60 million/year. In general, treating only positively tested flocks is far cheaper than treating all flocks, despite the additional testing costs incurred on the farm and in the processing plants. Losses due to potential price reductions for processing plants because of organoleptic changes, product changes, the non-acceptance by consumers and the additional costs related to channelling are, if occurring, far higher than the estimated treatment costs for the various interventions.
References


