

**Cost-benefit evaluation of risk-based meat inspection for bovine cysticercosis in a Danish cattle abattoir**

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The aim of this study was to incorporate knowledge about food chain information consisting of known risk factors into a stochastic scenario tree simulation model for analysis of future risk-based meat inspection systems for the zoonotic infection bovine cysticercosis (BC) in Danish cattle. We estimated surveillance system component sensitivity (SSCSe), specificity and potential monetary benefits compared to the current system, which has an estimated SSCSe of 15%. The population of cattle slaughtered in a large Danish abattoir during a 1-year period was divided into high-risk and low-risk groups according to the following risk factors: gender, grazing and access to risky water sources. All animals in the low-risk groups would be subjected to visual inspection only. It was assumed that the abattoir would be able to reorganise the work at the slaughterline to save money by introducing visual inspection and gain on the price of sold uncut beef from the masseter muscles from visually inspected cattle. Under these assumptions, gender and grazing were preferable due to their only slightly lower SSCSe than seen in the current system, and highest cost-effectiveness ratios. However, these two factors had a lower net gain than the scenario using access to risky water sources to differentiate low and high-risk groups. Using gender to differentiate high and low-risk groups is preferable over grazing due to feasibility, because this food chain information is readily available at the slaughterline. The potential national net gain depends on how many abattoirs would be able to reorganise the work at the slaughterline to save money on inspection of the head of carcasses. Overall, the SSCSe was low in all scenarios. Therefore, improving the meat inspection sensitivity would be beneficial.