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Costs estimation of human salmonellosis outbreaks associated to animal products consumption in Brazil, 2008/2016

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Human salmonellosis is one of the most frequent foodborne diseases worldwide, causing damage to population health and a major financial impact, even in developed countries. In Brazil, due to communication system failures, it is estimated that only 10% of total foodborne outbreaks are reported. A partial budget model with stochastic modelling was used to estimate the costs of human salmonellosis outbreaks carried by animal products, notified to Health Ministry from January 2008 to December 2016. The costs were estimated on absence days of work and on hospital treatment expenses. Infected people were categorized according to illness severity: people who felt ill and stayed at home; people who got sick and received ambulatory care; people who got sick and needed hospitalization and people who got severely

sick needing intensive care treatment. Probabilistic models were created to estimate costs for each category using @ Risk[®] (version 5.7, Palisade Corporation©, 2015). The total average cost was estimated at US\$ 1.132.368,05. The variable of greatest impact was the average hospitalization ($R^2 = 0.90$), followed by average of absence days of work due hospitalization ($R^2 = 0.38$) and average of absence days of work per outpatient case ($R^2 = 0.22$). The model definition to estimate salmonellosis outbreaks costs, associated with animal origin products consumption, helps to show not only the financial impact of the disease in Brazil, but also allows a better visualization of the problem magnitude, improving the assertiveness of health surveillance programs.

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