RISK ASSESSMENT FOR E. COLI 0157:H7 IN MARKETED RAW AND FERMENTED MILK IN SELECTED AFRICAN COUNTRIES

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Abstract:

Quality standards and regulations for hygienic milk handling are put in place to protect consumers from milk-borne hazards. Whereas standards and regulations that insist on cold chain pathways and pasteurization have been successfully implemented in western countries, they have largely failed in most of the developing world.

We carried out a risk assessment study for E. Coli 0157:H7 in marketed raw and fermented milk in Kenya, Tanzania and Ghana. Data for the risk models were obtained from our on-going studies and other relevant literature. Scenario pathway models were developed for raw and fermented milk using event and fault trees, respectively. Because of the lack of suitable dose-response models, we used published models in our analyses. Sensitivity analyses were performed to assess the uncertainty and variability associated with the model.

Our analysis demonstrated that the risk associated with raw milk was relatively minimal since the raw milk is generally boiled before consumption. The risk also varied significantly due to the differences in methods of fermentation including time and duration, and the amounts consumed. Translating our findings in the context of regulations showed that current regulations should be re-assessed and based on an appropriate food safety objective of the particular country and the acceptable level of protection. The current standards and regulations that lack science-based recommendations need revision in the light of this risk assessment.