

MISCELLANEOUS TOPICS

MEAT PRODUCTS MICROBIOLOGICAL CONTAMINATION AND NUTRITIONAL QUALITY MONITORING NETWORK DEVELOPED FOR ROMANIA

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Introduction: The main goal of WHO global food safety strategy is reduction of health and social burden of foodborne diseases by use of surveillance systems. In this regard the Ministry of Public Health in Romania initiated national programs aiming to protect the population and prevent outbreaks of diseases related to environmental risk factors, by developing surveillance methodologies.

Objective: The goal of the pilot study (2001–2004) conducted by the Institute of Public Health in Timisoara (IPHT) was to develop a monitoring system for meat products as regards the nutritional quality, microbiological contamination and diseases risk, in order to establish a local, regional and national network and to develop a database to be used in food risk assessment for an evidence-based national control strategy, as well as to help Public Health Authorities (PHAs) in capacity building in all the 42 counties in Romania, involved in the study.

Material and methods: IPHT designed a web-based methodology to be applied by all 42 PHAs, consisting in data collection (questionnaires collecting information about the hygienic conditions on the entire food chain; meat products samples analysis to establish nutritional quality and microbiological contamination), report and communication of harmonized data.

Results: Data from the questionnaire revealed that only 42–63% of the meat plants had a functional HACCP (Hazard Analysis Critical Control Point) system and 15–18% of the sanitation tests, most of them (59–67%) at the equipments and working surfaces were unacceptable. From the 23,385 collected samples 39–48% had unacceptable nutritional values for at least one parameter (protein content below and above the standard limits, fat content above the limits and moisture above the limits). The use of starch, collagen tissues and mechanical deboned meat were decreasing the nutritional value of all products. Microbiological contamination has been identified in 12–18% of the samples; most frequent types of pathogenetic bacteria were coliforms (up to 88%) and *E. coli* (up to 85%); other identified microbiological contaminants were *Bacillus cereus* (up to 56%), coagulase-positive *Staphylococcus* (up to 28%), sulfite reducing *Clostridia* (up to 18%) and *Salmonella* (up to 10%). Most frequently contaminated foods were forcemeat, more than meat balls, more than sausages prepared from swine entrails. Responsible for foodborne diseases outbreaks due to contaminated meat products consumption were *Salmonella* followed by *E. coli* and coagulase-positive *Staphylococcus*.

Conclusions: We conclude that the development of such a network could help to gradually introduce a unitary and harmonized surveillance system of manufacturing conditions, nutritional value and microbiological contamination (integrated food safety network) through local, regional and national health risks evaluations related to meat products consumption. It can detect faults and indicate the

needs and provide the database to support Ministry of Public Health in taking health-related decisions in these matters, ensuring adequate resources to establish and strengthen the food safety programs and national food safety plan.