

Food involved in disease outbreaks in Germany in 2011

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In order to be able to avoid food-borne illnesses, extensive knowledge on the involved foods and the circumstances of food production and food processing are required. The Federal Institute for Risk Assessment (BfR) is therefore collecting data on food involved in disease outbreaks since 2005. A disease outbreak is suspected to be food-borne, if two or more persons are taken ill in connection with the same food. Once they have completed all investigations in relation to a food-borne illness outbreak, the state and Federal Armed Forces authorities responsible for food inspection send information on the foods involved to the BfR via the BELA¹ reporting system. The reporting procedure is based on the General Administrative Regulation (AVV) on "Zoonoses in the Food Supply Chain".

For the year 2011, the BfR has received information on 90 illness outbreaks from 14 federal states for evaluation. Most of them were caused by salmonella (n=34), followed by noroviruses (n=14) and campylobacter bacteria (n=8). But even bacterial toxins of staphylococci and *Bacillus cereus* and histamine had led to food-borne outbreaks (total: n=12).

For 50 out of the 90 reported outbreaks, there was sufficient evidence to establish one particular food as the cause of the illness. This assessment was based on microbiological and / or epidemiological studies. In accordance with the specifications of the AVV Zoonoses in the Food Supply Chain and Guideline 2003/99/EC, the BfR sent detailed information on these 50 outbreaks to the European Food Safety Authority (EFSA). The category "Ready meals and other prepared dishes" dominated among the food vehicles (n=14). This was followed by the category "Meat meat products and sausages" with five reported outbreaks as well as "fine bakery products" and "fresh vegetables" each with four outbreaks. Most of the foods contaminated by bacteria, viruses, toxins or histamine were eaten within the restaurant business (n=17) and in private households (n=10). Five of these food-borne outbreaks originated with food eaten in child facilities (school or kindergarten).

According to information provided by the competent authorities, there is very strong evidence that the handling of food by infected persons played an important part in at least 11 food-borne outbreaks. Other important factors were: "inadequate chilling" (n=9), "cross-contamination" (n=7), "processing of shell eggs" (n=5), "unprocessed contaminated ingredient" (n=4) or "detection of causative agent in primary production" (n=2). "Inadequate heat treatment" was also stated, as was "prolonged heating at an inadequate temperature" (n=7), through which pathogens can survive and / or multiply in food. In the case of one outbreak pest infestation was mentioned as a factor. The Hazard Analysis and Critical Control Point (HACCP) concept is an important component of self-control concepts of food business operators. In the case of six food-borne outbreaks, the HACCP concept was insufficient, according to the information provided by the authorities. One campylobacter outbreak was triggered by the contamination of fresh pork products through improper home slaughter. Three campylobacter outbreaks were caused by the consumption of raw milk straight from a farm, because the milk was either heated insufficiently or not at all prior to consumption.

¹ BELA is short for „bundeseinheitliches System zur Erfassung von Daten zu Lebensmitteln, die bei Krankheitsausbrüchen beteiligt sind“ which means „federal system for collecting data on food involved in disease outbreaks“

In the investigation of three national food-borne outbreaks, the local authorities were supported by the following government institutions: the BfR, the Robert Koch Institute (RKI) and the Federal Office for Consumer Protection and Food Safety (BVL). In early summer 2011, it was the sprout-associated EHEC outbreak and, towards the end of the year 2011, two outbreaks of *Salmonella* Newport following the consumption of mung bean sprouts and water melon respectively. Due to the international trade with these foods, consumers in several EU member states came down with the infection. These three outbreaks point to a spread of zoonotic pathogens through plant-based foods which so far has received less attention in Germany.

In summary, the received information confirms that many of the food-borne illness outbreaks reported to the BfR in 2011 were again caused by insufficient hygiene and inappropriate temperature management. Appropriate investigation of consumers and regular training of personnel in restaurants and communal facilities on correct handling of food can all help prevent outbreaks. In order to be able to gauge the significance of plant-based foods as the transmitter of pathogens better in future, it is, in addition, necessary that fruit and vegetables intended for raw consumption in particular are more frequently checked for the presence of zoonotic pathogens.

Leaflets with consumer tips for the protection against food-borne infections in private households can be downloaded free of charge from the Internet page of the BfR under publications and can also be ordered there using the shopping cart function.

The full version of this BfR Opinion is available in German on <http://www.bfr.bund.de/cm/343/an-krankheitsausbruechen-beteiligte-lebensmittel-in-deutschland-im-jahr-2011.pdf>