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### Articles

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### A nationwide outbreak of *Salmonella Bovismorbificans* PT24, Germany, December 2004-March 2005

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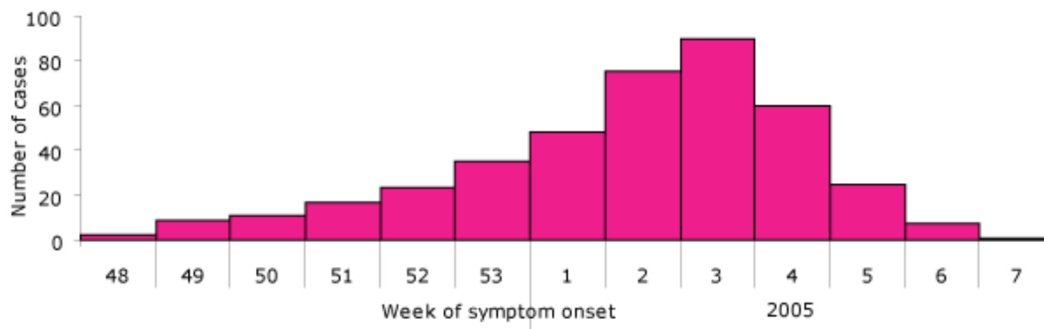
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Since late 2004, there has been an increase in notifications of *Salmonella enterica* serovar Bovismorbificans infections in northwest Germany. Over the 13 weeks between 29 November 2004 and 17 March 2005, 525 cases of laboratory confirmed *S. Bovismorbificans* were reported to the Robert Koch-Institut (RKI) with a peak of onset of symptoms in the third week of 2005 (Figure). A 62 year old woman has died of the infection.

An inquiry through Enter-net in January 2005 did not show any increase of *Salmonella Bovismorbificans* in other European countries [1]. This serovar was one of the ten most frequently notified salmonella serovars detected in humans between 2001 and 2003 in Germany: 152 cases of *S. Bovismorbificans* were notified in 2003 (0.3% of all notified salmonella cases with serovar information), 186 cases in 2002 (0.3%), and 388 cases in 2001 (0.5%).

We report the preliminary results of a case-control study conducted by the RKI in cooperation with the federal states involved.

**Figure.** *S. Bovismorbificans* outbreak 2004/2005, Germany: Number of cases with the week of reported symptom onset. Weeks 48/2004 to 07/2005 (n=402)



On the basis of initial laboratory results and exploratory interviews with patients by the responsible local health authorities, the hypothesis evolved that raw pork products were the likely vehicle of transmission. Raw meat products are consumed frequently in various regions of Germany.

In cooperation with the federal states with the highest number of cases (Nordrhein-Westfalen, Hessen, Mecklenburg-Vorpommern, Schleswig-Holstein, Hamburg and Niedersachsen) a case-control study was conducted to validate this hypothesis.

Cases were defined as people living in one of the federal states listed above with onset of gastroenteritis between 1 December 2004 and 10 February 2005 and stool cultures positive for *S. Bovismorbificans*. For every case, one control was chosen at random by sequential sequence telephone dialling.

Altogether, 141 cases and 135 controls were included in the study. Among the queried food items, raw minced pork was clearly associated with illness (Odds Ratio= 11.0; 95% Confidence Interval: 4.2-28.9). Additionally, one particular fermented raw pork sausage was associated with infection (Zwiebelmettwurst). The consumption of all other food items was similar between cases and controls.

Comparative subtyping of the *S. Bovismorbificans* isolates by pulsed-field gel electrophoresis (PFGE) and phage typing found that case isolates and isolates from some pork products were indistinguishable (phage type 24). On the basis of these findings, intensive efforts are being made to trace the possible food source of this outbreak at the level of meat suppliers.

Since one of the implicated meat suppliers exports products to other European and non-European countries, associated cases may have appeared in other countries. If the occurrence of *S. Bovismorbificans* PT 24 is observed in other countries in humans or food samples, the following authors would like to be informed:

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