Outbreaks of shigellosis in Denmark and Australia associated with imported baby corn, August 2007 – final summary

HC Lewis (haw@ssi.dk)1,2, M Kirk3, S Ethelberg1,4, R Stafford5, KEP Olsen4, EM Nielsen4, M Lisby6, SB Madsen6 and K Mølbak1

1. Department of Epidemiology, Statens Serum Institut, Copenhagen, Denmark
2. European Programme for Intervention Epidemiology Training (EPIET)
3. OzFoodNet, Commonwealth Department of Health and Ageing, Canberra, Australia
4. Department of Bacteriology, Mycology and Parasitology, Statens Serum Institut, Copenhagen, Denmark
5. OzFoodNet, Communicable Diseases Branch, Queensland Health, Brisbane, Australia
6. Fødevareregion Øst (Regional Veterinary and Food Control Authority East), Copenhagen, Denmark

The recently reported concurrent outbreaks of Shigella sonnei infections in Denmark [1] and Australia [2] have been found to be linked to a common baby corn packing house in Thailand via trace-back of the distribution chain. Distribution records indicated that three additional countries received affected product from the implicated Thai packing house during the period of potential contamination. These countries were notified through the World Health Organization's International Food Safety Authorities Network (INFOSAN). Associated cases of S. sonnei have not been reported in these three countries.

Denmark
In Denmark, 218 cases of laboratory-confirmed S. sonnei infection were reported to the Statens Serum Institut, Copenhagen between 1 August and 30 September 2007. During investigations, 12 cases reported recent foreign travel, two had an alternative exposure and three were deemed to be secondary cases and were therefore excluded, leaving 201 primary domestic cases. Of the 201 primary cases, the median age was 38 years old (range 2-92 years) and 150 cases (75 %) were female. Symptom onset dates, which ranged from 6 August until 20 August, were available for 94 cases (Figure 1). The last recorded onset date (20 August) in Denmark was no more than three days after the recall of the implicated product on 17 August 2007.
Australia
In Australia, a total of 12 laboratory-confirmed cases were reported, all of whom acquired their infection in the state of Queensland. This included two residents of the state of Victoria and one from New Zealand. The onset of illness among all cases was between 9 and 27 August 2007.

Food analysis
Microbiological examination of the suspected batches of imported baby corn in Denmark detected various serotypes of *Salmonella enterica* and high levels of *Escherichia coli*, indicating faecal contamination. *Shigella* spp. were not detected, suggesting that contamination levels were low. Australia was unable to test the implicated batch of corn, but did detect >100 colony forming units of *E. coli* per gram in 25 gram samples from other batches from the same importer.

Conclusion
Baby corn was implicated in the Danish outbreak following case reports of baby corn consumption and baby corn being found to be significantly associated with illness in a cohort study [1]. The possibility that the outbreaks might be linked was raised by the Australian public health authorities following the publication of the Danish outbreak strain’s antibiotic resistance pattern [1]. This was further reinforced when isolates from Denmark and Australia were found to display indistinguishable PFGE patterns. As well as the report in Eurosurveillance, international awareness of the outbreak and the outbreak strain was raised via numerous international networks, such as the Early Warning Response System (EWRS) and Rapid Alert System for Food and Feed (RASSF) of the European Union, Enternet, Pulsenet Europe, Pulsenet US, Pulsenet Asia, and INFOSAN. This outbreak highlights the importance of timely international communications in helping to identify when a contaminated food enters international trade and results in human illness.

References:
Disclaimer: The opinions expressed by authors contributing to Eurosurveillance do not necessarily reflect the opinions of the European Centre for Disease Prevention and Control (ECDC) or the Editorial team or the institutions with which the authors are affiliated. Neither the ECDC nor any person acting on behalf of the ECDC is responsible for the use which might be made of the information in this journal.