Outbreak of campylobacteriosis in Sweden associated with consumption of raw milk

Ingrid Hansson, EURL Campylobacter
Description of the outbreak

Early in 2011, an outbreak of gastroenteritis due to *Campylobacter* with 12 cases was reported in Sweden.

- The outbreak included a dairy farm and 2 other farm families with persons that had consumed raw milk from the dairy farm.

- The owner of the dairy farm was (grand)/father to the other two exposed families.

- Fresh cheese and ice-cream were produced at the dairy farm.
Outbreak associated with raw milk

Dairy Farm
Grandfather 1
Symptoms
Pos

Grandfather 1
Symptoms
Pos

Family 1
5 of 5 symptoms
5 of 5 pos
1 isolate (type A)

Family 2
3 of 4 symptoms
3 of 4 pos
3 isolates from 1 person (type A and 2* type C)

Grandfather 2
Symptoms
Neg

Grandmother
Symptoms
Pos
1 isolate (type B)

Milkfilter
Pos
4 isolates (4*typeA)

Farm worker
No Symptoms

20 km
5 km
5 km
6 km
5 km
30 km

5 km

20 km

5 km
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Stool samples were collected and analyzed at least once from 13 persons: 12 cases and one asymptomatic person who worked at one of the farms, but had not consumed raw milk.

Campylobacter spp./C. jejuni was isolated from 10 of the 12 cases.

Nine of ten positive cases had consumed raw milk.

One person, who had not consumed raw milk but became ill, had changed nappies of one of the children with gastroenteritis.
Analysis of the samples

• The stool samples were analysed by direct culture on *Campylobacter* selective blood free agar.

• The milkfilter was cut in two pieces. One piece was enriched in Bolton, the other in Preston broth. Thereafter isolation was made on modified charcoal cefoperazone deoxycholate agar, (mCCDA), and Preston agar.
Results of analyses

• Environmental
  – Water – acceptable for drinking
  – Cheese – high level of E. coli

• Human
  – Stool samples – Growth of Campylobacter jejuni

• Raw milk
  – Milkfilter – Growth of Campylobacter jejuni
Genotyping by PFGE of the isolates in the milk outbreak

PFGE, SmaI

<table>
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<th>Sample</th>
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<th>Type</th>
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Measures

- Production of cheese was stopped
- Persons working in the production of cheese were tested negative before allowed to start work again
- Cheese was tested negative before allowed to be sold
Conclusions

• Small family outbreaks at dairy farms may be more common than recognized from official reports.

• Susceptibility among family members may vary depending on previous occupational exposure to *Campylobacter*.

• In this outbreak both epidemiological and bacteriological evidence implicated contaminated raw milk as a source of infection.
Acknowledgement

• Marion Mars-Åhgren and Jan Smedjegård, Department of Communicable Diseases Control, County Council of Västmanland, Västerås

• Per Sahlander, County Administration of Västmanland, Västerås

• The technicians at the laboratories