NRL - *Escherichia coli* The Netherlands

Annet Heuvelink

Food and Consumer Product Safety Authority (VWA)
Zutphen, The Netherlands
Enhanced laboratory-based surveillance of STEC O157

Goal

- Knowledge of laboratory-confirmed cases of STEC O157 infection
- Identifying clusters / epidemics
- Identifying infection sources
- Intervention possibilities
Enhanced laboratory-based surveillance of STEC O157

1. STEC / Stx
2. MML
3. RIVM-EPI
4. GGD
5. IGZ
6. patient
7. VWA

- STEC / Stx to MML
- MML to RIVM-EPI
- Isolate to RIVM-LIS
- RIVM-LIS to GGD
- GGD to IGZ
- Questionnaire to IGZ
- IGZ to patient
- Suspicion (food / animal contact) to VWA
- VWA to MML

- Mandatory notification
- Infectious Disease Law (Group C)
- Confirmation & subtyping
Enhanced laboratory-based surveillance of STEC O157

- Data from 1999 to 2006
- Number of patients: 36, 43, 41, 49, 57, 35, 53
- 21 out of 53 cases (40%) were outbreak cases
- 0.22 – 0.35 cases per 100,000 inhabitants per year

Source: RIVM, EPI
Enhanced laboratory-based surveillance of STEC O157

Source: RIVM, EPI
Enhanced laboratory-based surveillance of STEC O157

- Diarrhoea: 99%
- Abdominal cramps: 88%
- Blood (faeces): 87%
- Abdominal pain: 83%
- Mucus (faeces): 68%
- Pale: 67%
- Fatigue: 66%
- Nausea: 57%
- Fever: 41%
- Oliguria: 36%
- Headache: 26%
- HUS: 15%

Source: RIVM, EPI
Risk factors

- contact with symptomatic person
- contact with farm animals
- raw/undercooked beef
- dairy (raw)

Bron: RIVM, EPI
Farm animals

Escherichia coli O157 infection associated with a petting zoo

A. E. HEUVELINK1, C. VAN HEERWAARDEN2, J. T. M. ZWARTKRUIS-NAHUIS3, R. VAN OOSTEROM4, K. EDINK4, Y. T. H. P. VAN DUYNHOVEN4 AND E. DE BOER1

1 Inspectorate for Health Protection and Veterinary Public Health, PO Box 202, 7200 AE, Zoetermeer, The Netherlands
2 Inspectorate for Health Protection and Veterinary Public Health, Hoogte Kadijk 401, 1018 BK Amsterdam, The Netherlands
3 Municipal Health Service Gooi en Vechtsnicks, PO Box 251, 1400 AG Bussum, The Netherlands
4 National Institute of Public Health and the Environment, Bilthoven, The Netherlands

Public farms: hygiene and zoonotic agents


Food and Consumer Product Safety Authority, Zoetermeer, The Netherlands
Outbreak report

Shiga toxin-producing Escherichia coli (STEC) O157 outbreak, The Netherlands, September – October 2005

Y Doorduyn¹, CM de Jager¹, WK van der Zwaluw², JHM Friesema³, AE Heuvelink³, E de Boer³, WJB Wannet², YTIJ van Duynhoven¹

1. Centre for Infectious Diseases Epidemiology, National Institute for Public Health and the Environment, Bilthoven, The Netherlands
2. Diagnostic Laboratory for Infectious Diseases Diagnosis and Perinatal Screening, National Institute for Public Health and the Environment, Bilthoven, The Netherlands
3. Food and Consumer Product Safety Authority, Zutphen, The Netherlands
Dairy

jaargang 16 nummer 08 2005 (pagina 286-288)

A.E. Heuvelink, Voedsel en Waren Autoriteit, regio Oost, e-mail: annet.heuvelink@vwa.nl, M. Ripping, GGD Gelre-IJssel, Doetinchem en Y.T.H.P. van Duynhoven, Centrum voor Infectieziekten Epidemiologie, RIVM, Bilthoven.

*Escherichia coli* O157 en/of *Campylobacter*

Zo rauw hadden ze het niet gegeten, maar wel gedronken.
Vegetables & fruits?

STEC O157 outbreak in the Netherlands, September-October 2007

I Friesema (ingrid.friesema@rivm.nl)¹, B Schimmer¹, O Stenvers², A Heuvelink², E de Boer², K van der Zwaluw¹, C de Jager¹, D Notermans¹, I van Ouwerkerk¹, R de Jonge¹, W van Pelt²

1. Centre for Infectious Disease Control, Rijksinstituut voor Volksgezondheid en Milieu (National Institute for Public Health and the Environment, RIVM), the Netherlands
2. Food and Consumer Product Safety Authority, the Netherlands
Epi curve

**Figure 1**

Epidemic curve by onset of symptoms of all STEC O157 cases related to the outbreak, September-October 2007, the Netherlands (n=35)

http://www.eurosurveillance.org/ew/2007/071101.asp#1
Age and sex

**Figure 2**

Age and sex distribution of all STEC O157 cases related to the outbreak, September-October 2007, the Netherlands (n=36)

http://www.eurosurveillance.org/ew/2007/071101.asp#1
Risk factors

**Case – case study:** raw vegetables (p=0.06)

- patients belonging to the outbreak (n=31): 71%
- other, previously diagnosed patients 2007 (n=37): 49%

**Trawling questionnaire:** prepacked shredded iceberg lettuce from different supermarket chains

http://www.eurosurveillance.org/ew/2007/071101.asp#1
Actions

- Distribution channels prepacked, fresh vegetables (end products and ingredients)
- Microbiological examination (end products, ingredients, environmental samples)
- Rapid Alert System for Food and Feed (RASFF)

http://www.eurosurveillance.org/ew/2007/071101.asp#1
Outbreak STEC O157 infection, Sept – Oct 2007, Iceland

9 patients
- onset disease: 23 Sept – 18 Oct
- age: 2 – 61 year
- 5 male, 4 female
- stx1, stx2, PFGE Iceland = PFGE NL

Risk factors

Trawling questionnaire (n=8)

Purchase records (n=3)
  ➢ fish / ham (n=7)
  ➢ lettuce (n=6)
    ➢ Prepacked, mixed lettuce imported from NL

Actions

- Microbiological examination lettuce (end products)

Problems tracing infection sources

Time between onset of disease and completing the questionnaire

- first symptoms
- consulting general practitioner
- results microbiological examination of feces
- notification to the local public health office (GGD)
- completing standard questionnaire by the GGD

- remember exposure to risk factors
- no left-overs food

(RIVM, EPI: mediaan 16 - 21 d, range 4 - 161 d)
Enhanced laboratory-based surveillance of STEC O157

STEC / Stx

MML

Isolate

RIVM-EPI

Mandatory notification

Infectious Disease Law (Group C)

RIVM-LIS

Confirmation & subtyping

GGD

Questionnaire

IGZ

Suspicion
(food / animal contact)

VWA

patient
Thanks for your attention

21 januari 2008