



The European Food- and Water-borne Diseases (FWD) Surveillance network

Surveillance of STEC/VTEC infections in Europe

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European Centre for Disease Prevention and Control
CRL VTEC meeting, Rome, 30 October 2009



Director

Zsuzsanna Jakab

Cabinet and Office of the Director

- Strategic Management
- Governance
- External Relations, Partnership
- Country Relations

Chief Scientist

Johan Giesecke

Internal Auditor

Stefan Sundbom

Surveillance Unit (SUN)

Andrea Ammon

Data Management and General Surveillance

Disease Specific Surveillance

1. Influenza
2. Tuberculosis
3. Food- and waterborne diseases and zoonoses
4. Emerging and vectorborne diseases
5. Vaccine-preventable diseases and invasive bacterial infections
6. HIV, STI and blood-borne viruses
7. Antimicrobial resistance and healthcare-associated infections

Scientific Advice Unit (SAU)

Johan Giesecke

Microbiology Coordinator

Evidence Base for Prevention and Control

Scientific and Technical Advice Knowledge Services

Future Threats and Determinants

Preparedness and Response Unit (PRU)

Denis Coulombier

Epidemic Intelligence and Emergency Operations Centre

Outbreak, Preparedness and Support

Epidemiological Training

Health Communication Unit (HCU)

Karl Ekdahl

Scientific Communication

Public Communication and Media

Web Services

Administrative Services Unit

Anni Hellman

Legal and Procurement

Human Resources

Finance and Accounting

ICT

Missions, Meetings and Logistics

Horizontal Programmes

Surveillance mandate of ECDC



Search for, collect, collate, evaluate and disseminate relevant scientific and technical data

(ECDC Founding Regulation (851/2004), Article 1)



General developments



- **Evaluation of 17 DSNs**, transfer of coordination to ECDC
 - Enter-net evaluated and coordination transferred in 2007
- Standard **EU case definition**
 - Published on 28 April 2008
 - http://ec.europa.eu/health/ph_threats/com/docs/1589_2008_en.pdf
- Long term **surveillance strategy 2007-2013**
- General **strategy on cooperations with microbiology laboratories (2007-2013)**
- **The European Surveillance System (TESSy)**
- ECDC **Multi-Annual Strategic Plan 2007-2013** (Target 2)





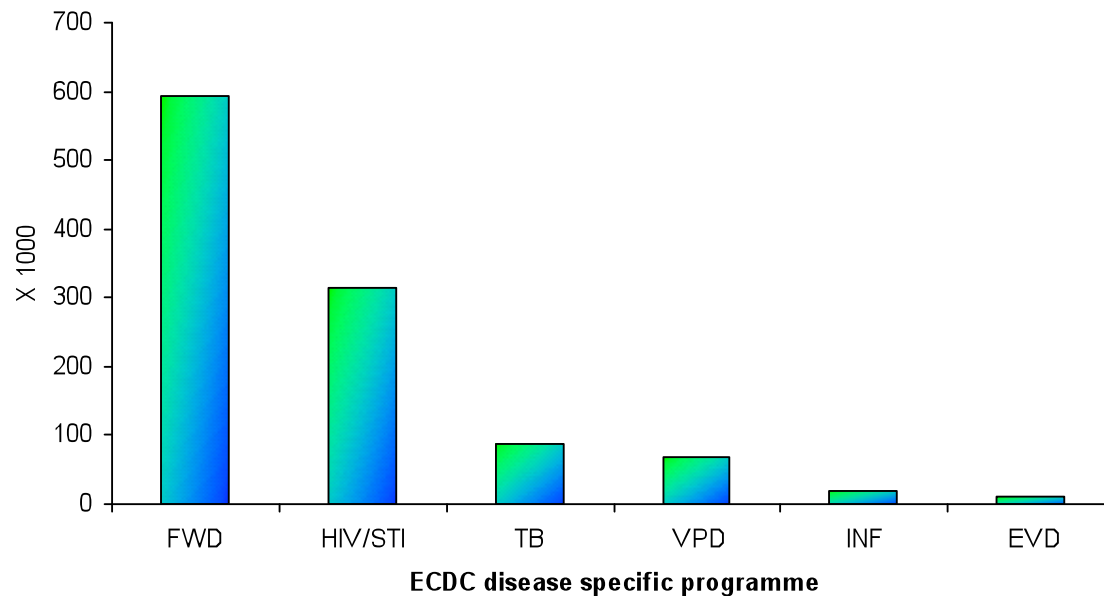
Food- and water-borne diseases and zoonoses programme

Scope of European FWD programme



20/49 diseases (41%)

Confirmed cases of 49 communicable diseases by ECDC disease specific programmes (excluding HCAI*), AER 2006, N = 1 092 156



*HCAI = Health Care Associated Infection

- Anthrax
- Botulism
- Brucellosis
- **Campylobacteriosis**
- Cholera
- Variant Creutzfeldt-Jakob disease
- Cryptosporidiosis
- Echinococcosis
- Giardiasis
- Hepatitis A
- **Listeriosis**
- Leptospirosis
- **Salmonellosis**
- **Shigellosis**
- **STEC/VTEC infection**
- Toxoplasmosis
- Trichinosis
- Tularaemia
- **Typhoid/paratyphoid fever**
- **Yersiniosis**

General FWD surveillance objectives



▪ **Strengthen**

- integrated surveillance of strains from humans, food and animals
- laboratory capacity in MSs
- collaboration between public health, food and animal authorities

▪ **Enhance**

- detection of international food-borne clusters and outbreaks
- exchange of information on causative agents/strains of human, food and animal origin





Trend of STEC/VTEC infection and results of 2007 surveillance data

Harmonisation after transfer of Enter-net



- Nomination of FWD surveillance network
 - Disease specific **epidemiologists and microbiology experts**
 - Six priority diseases:
 - Salmonellosis
 - Campylobacteriosis
 - STEC/VTEC infection
 - Listeriosis
 - Shigellosis
 - Yersiniosis
 - **Coordination Group**: 5 epi + 5 lab + EFSA + CRL VTEC

- Integration of Enter-net variables to TESSy
 - Common set of variables (18) for all diseases
 - Enhanced set of variables for STEC/VTEC (33)



STEC/VTEC infection - case based overview



Disease specific variables in TESSy

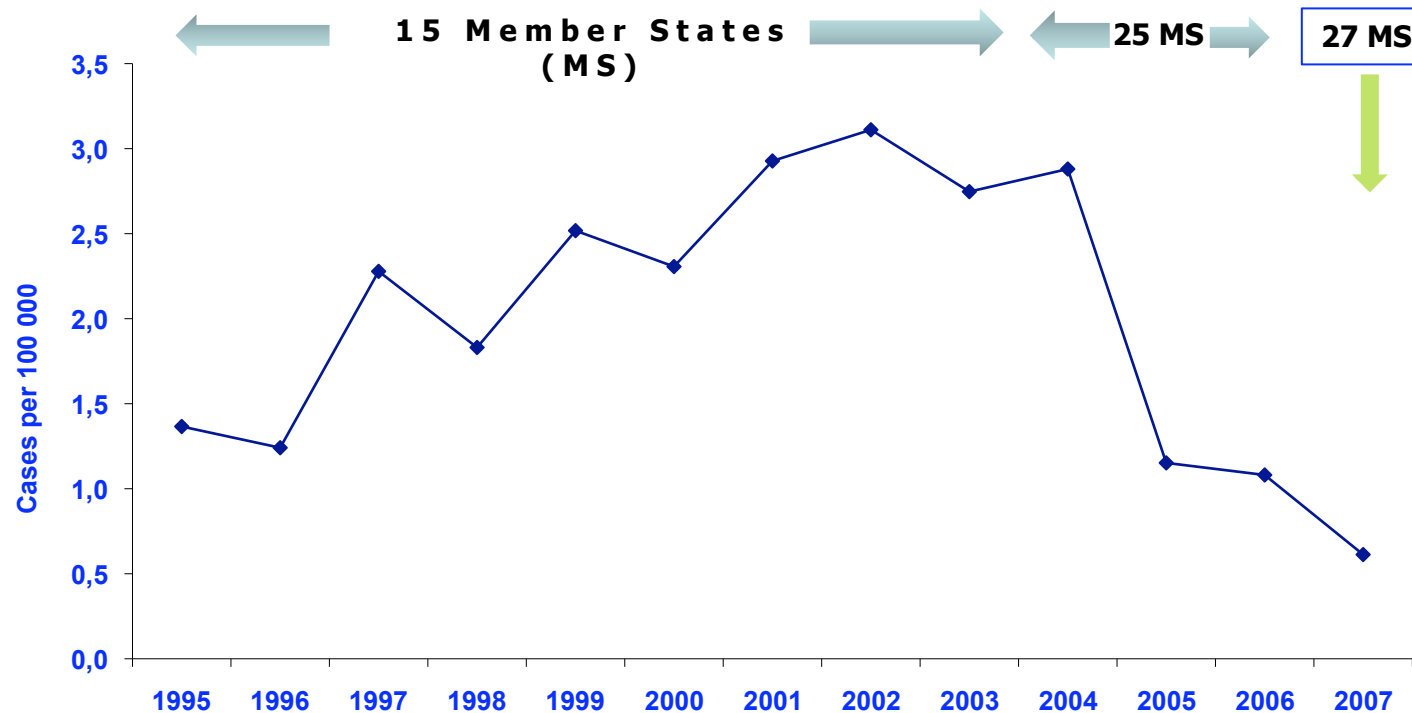
1. **DateOfReceiptSourceLab**
2. **DateOfReceiptReferenceLab**
3. **Imported**
4. **ProbableCountryOfInfection**
5. **HUS**
6. **ClinicalManifestation**
7. **Transmission**
8. **SuspectedVehicle**
9. **Specimen**
10. **IsolateReferenceNumber**
11. **AntigenO**
12. **AntigenH**
13. **PhageType**

14. **VerotoxinProduction**
15. **VerotoxinGenes**
16. **Verotoxin1**
17. **Verotoxin2**
18. **Verotoxin2SubType**
19. **IntiminEaeGene**
20. **Enterohaemolysis**
21. **SorbitolFermenting**
22. **BetaGlucoronidaseActivity**

23. **SIR_AMP**
24. **SIR_CTX**
25. **SIR_CHL**
26. **SIR_CIP**
27. **SIR_GEN**
28. **SIR_KAN**
29. **SIR_NAL**
30. **SIR_STR**
31. **SIR_SSS**
32. **SIR_TCY**
33. **SIR_SXT**

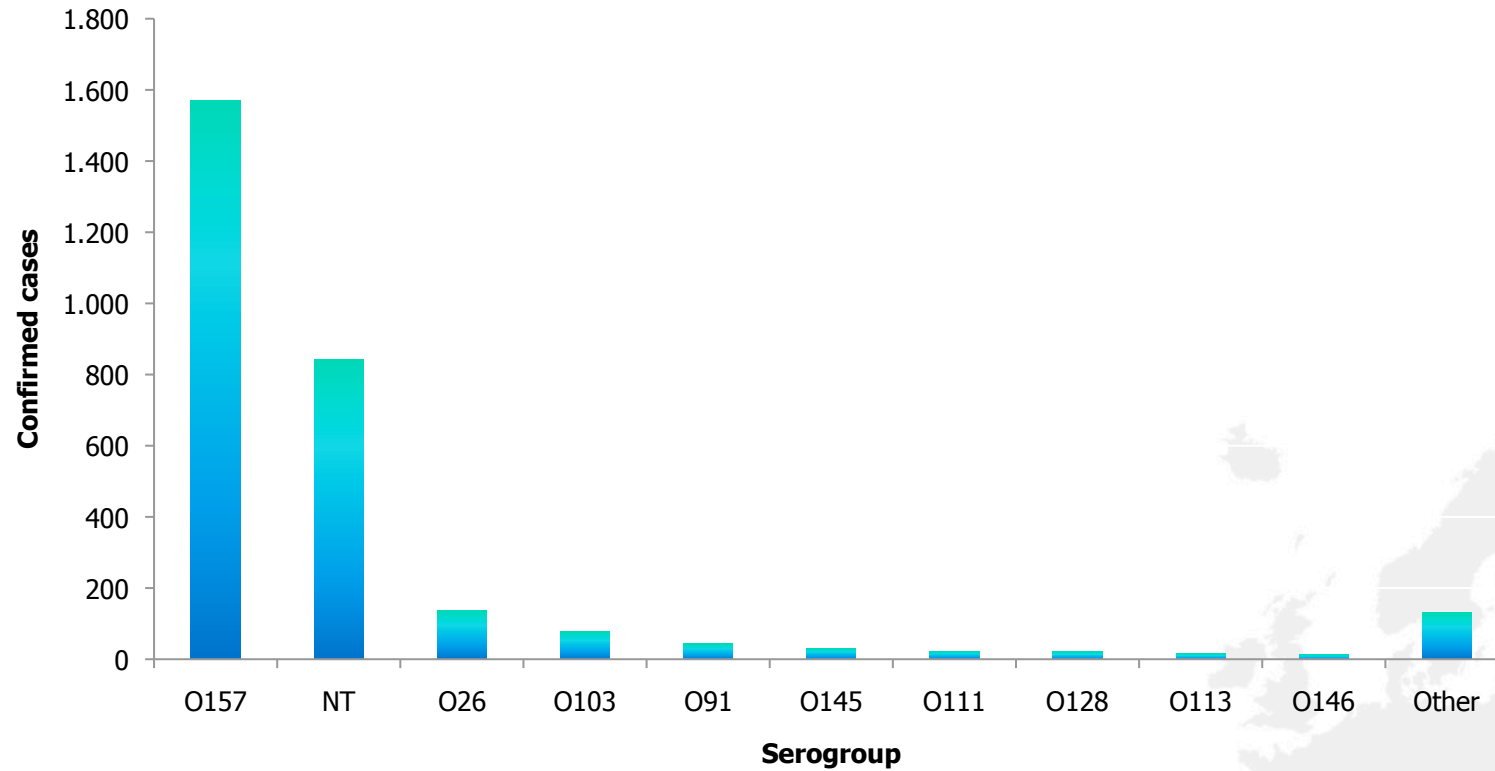
13 year trend of STEC/VTEC infection in the EU*

15 MS account for 97-99% of all reported cases between 2003-2007



*Source: Annual Epidemiological Report 2006 for 1995-2006, TESSy data for 2007

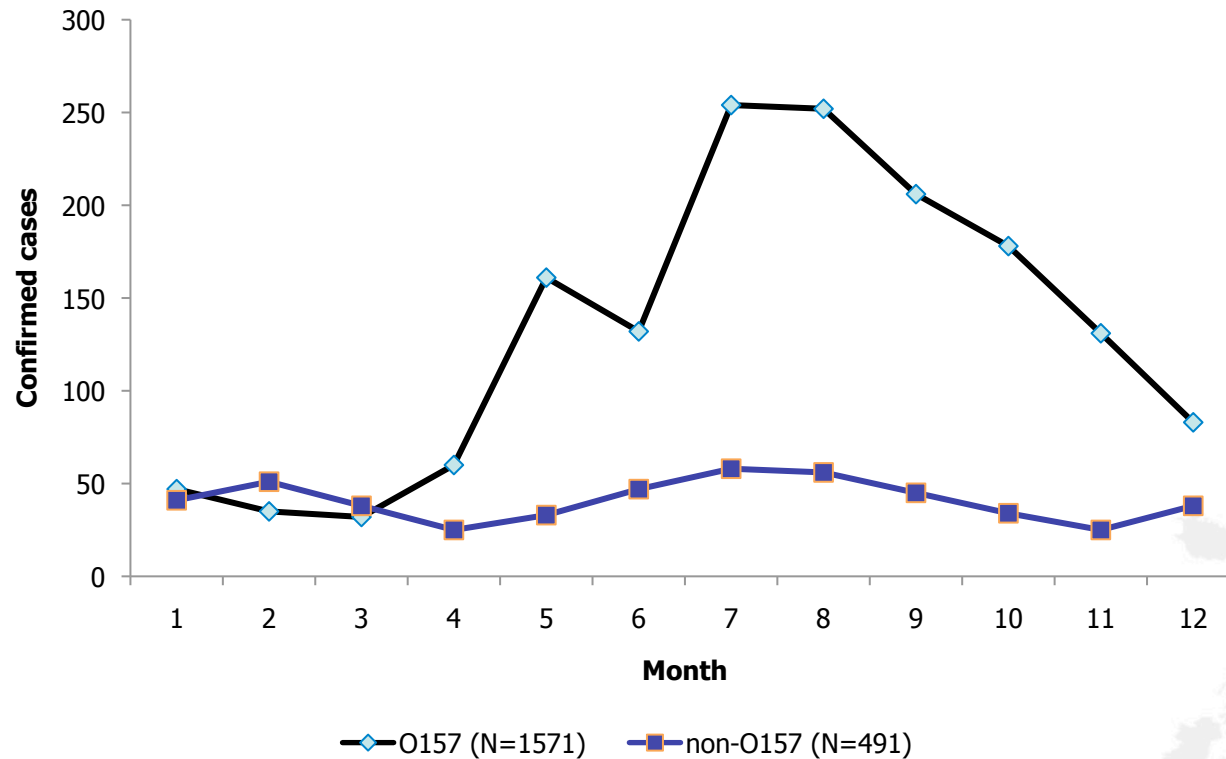
Confirmed STEC/VTEC cases by serogroup in the EU in 2007 (N=2904)



NT = untyped/untypeable

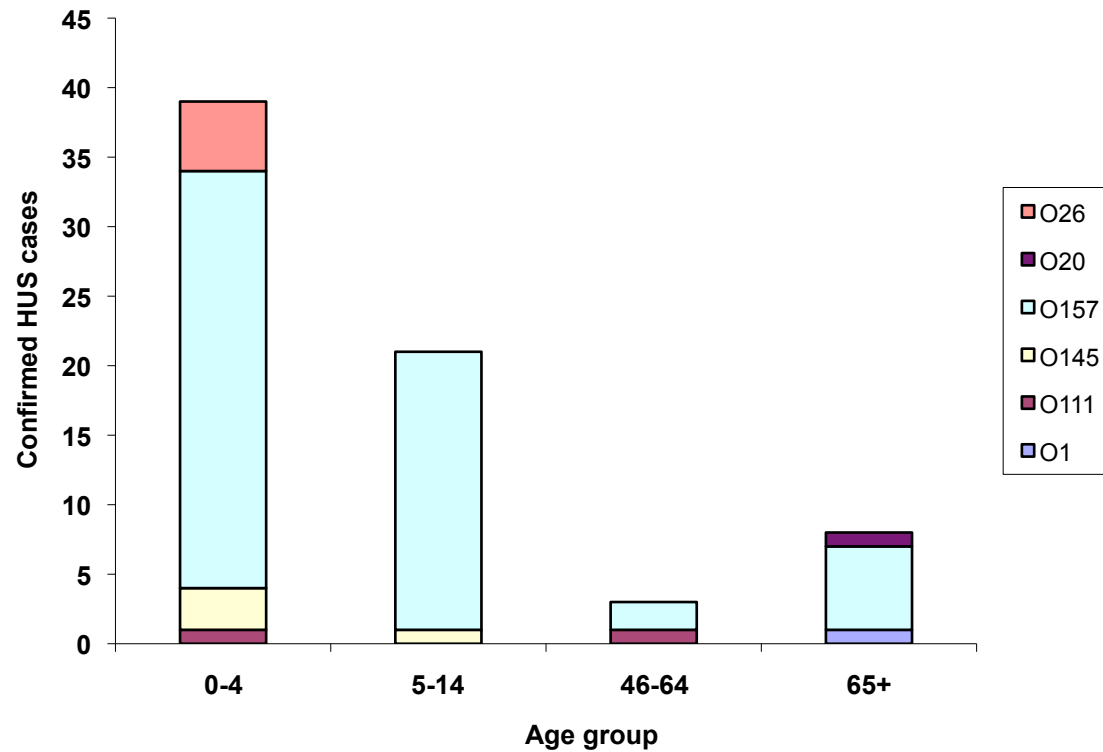
Source: TESSy

Confirmed STEC/VTEC cases by month and by serogroup in the EU in 2007 (N=2904)



Source: TESSy

HUS cases by serogroup in the EU in 2007 (N=103)



Source: TESSy data from 9 MS, published in the Zoonoses Report 2007

STEC/VTEC surveillance in 2007



- Main conclusions
 - Decrease in reported numbers due to increase of MSs in the EU with low level/zero reporting (denominator ↑)
 - ⇒ considerable under-ascertainment since 2004
 - Serogroup O157 most commonly associated with HUS

- Future perspective
 - Improvement of surveillance in close collaboration with the FWD surveillance network
 - Collaboration with CRLs
 - Analysis of complete enhanced data set
 - ⇒ Annual reports of enhanced surveillance

THANK YOU!

**Special thanks to the FWD network and
to the ECDC FWD team:**

