

# *Sorveglianza della Sindrome Emolitico Uremica pediatrica e delle infezioni da E.coli produttore di verocitotossina, in Italia (1988-2010)*



**Gaia Scavia – Alfredo Caprioli**

**Istituto Superiore di Sanità**

*Dipartimento di Sanità Pubblica Veterinaria e  
Sicurezza Alimentare*

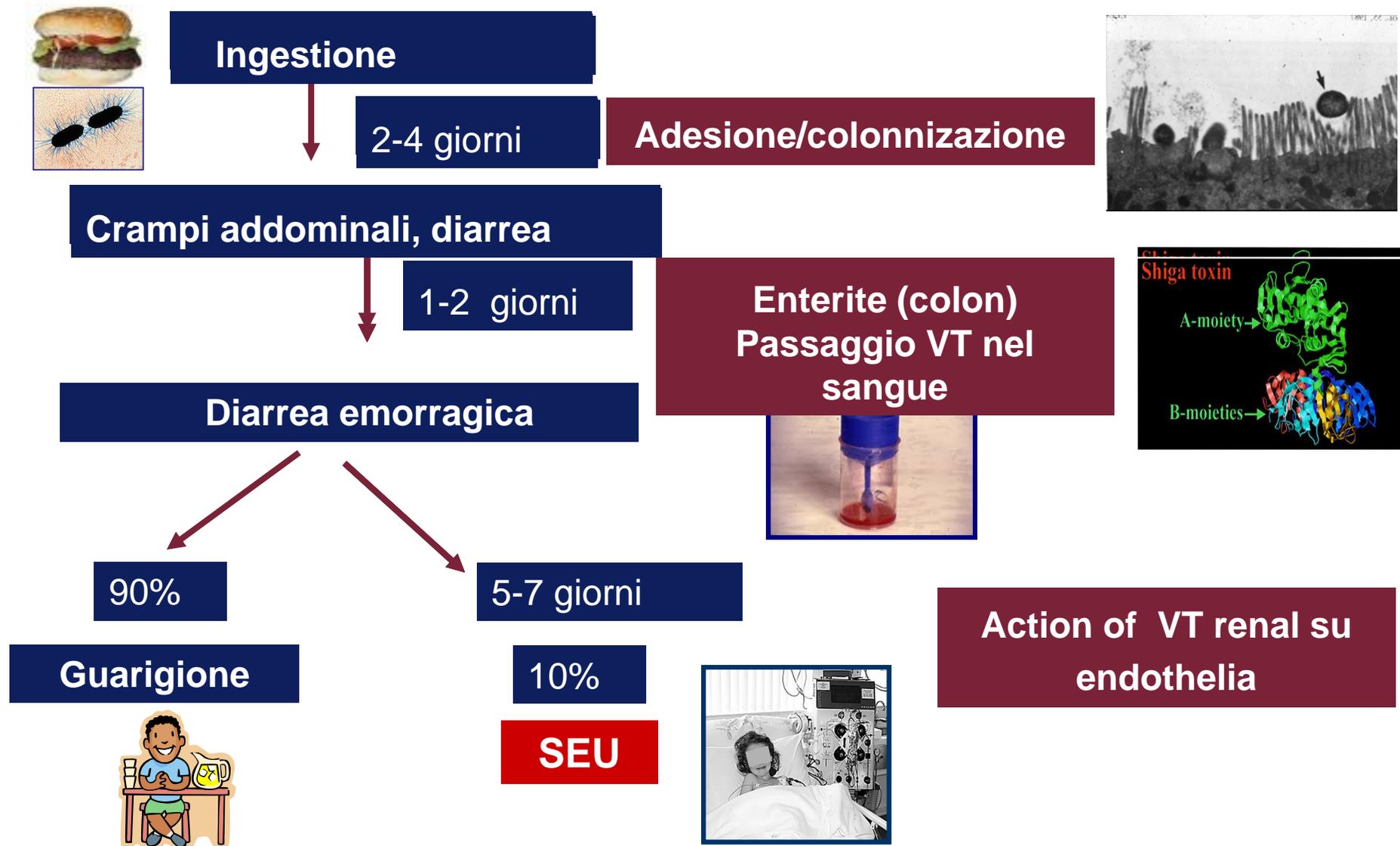
**Registro Italiano Sindrome Emolitico Uremica**

**EU Reference Laboratory for E.coli**

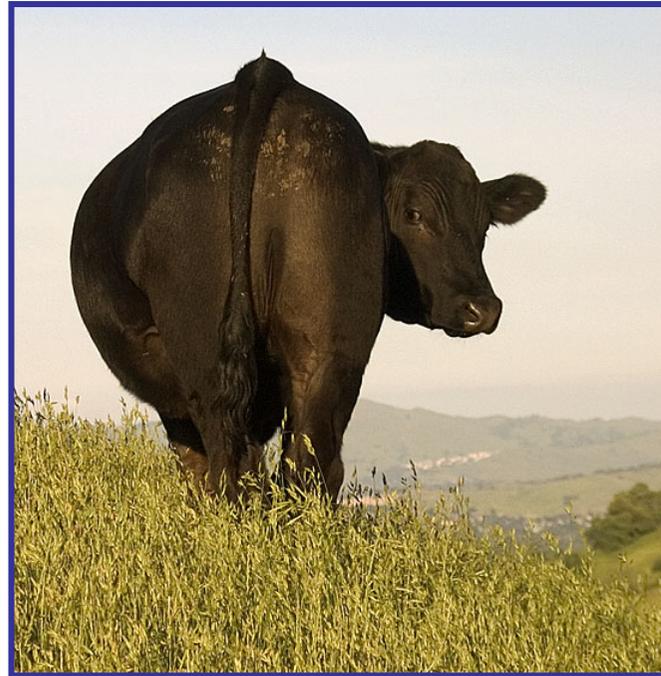
## **Sindrome Emolitico Uremica (SEU) e infezioni da *E.coli* verocitotossici (VTEC)**

- **Anemia emolitica microangiopatica**
- **Trombocitopenia**
- **Insufficienza renale acuta (richiede spesso dialisi)**
  
- **È la manifestazione clinica più caratteristica e grave delle infezioni da VTEC**
- **Si manifesta nel 5-10% dei casi di infezione**
- **Rappresenta un indicatore robusto delle infezioni da VTEC nella popolazione**

# Patogenesi delle infezioni da VTEC nell'uomo



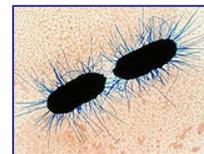
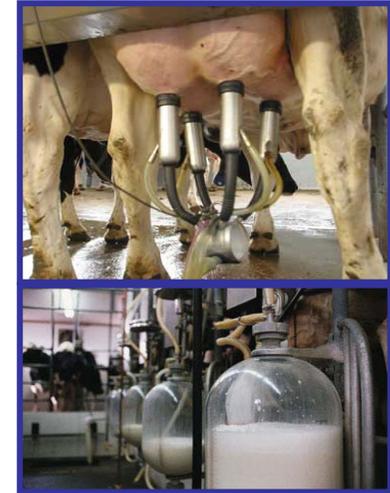
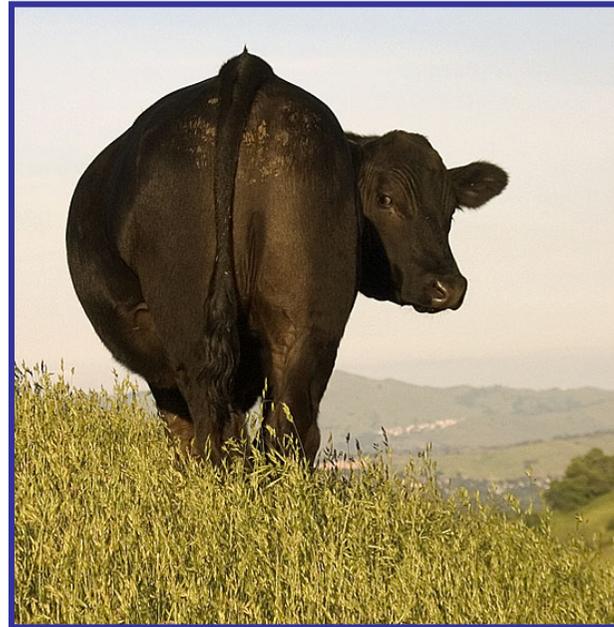
# VTEC origine zoonotica



**Portatori asintomatici  
Colonizzazione**

# VTEC vie di trasmissione: alimentare

**Filiere animali: contaminazione primaria di carne e latte**



# VTEC vie di trasmissione: ambientale

## Contaminazione ambientale



**Suolo**

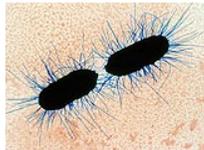


**Acque superficiali**



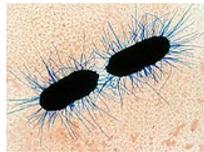
# VTEC vie di trasmissione: alimentare

## Filiera vegetale

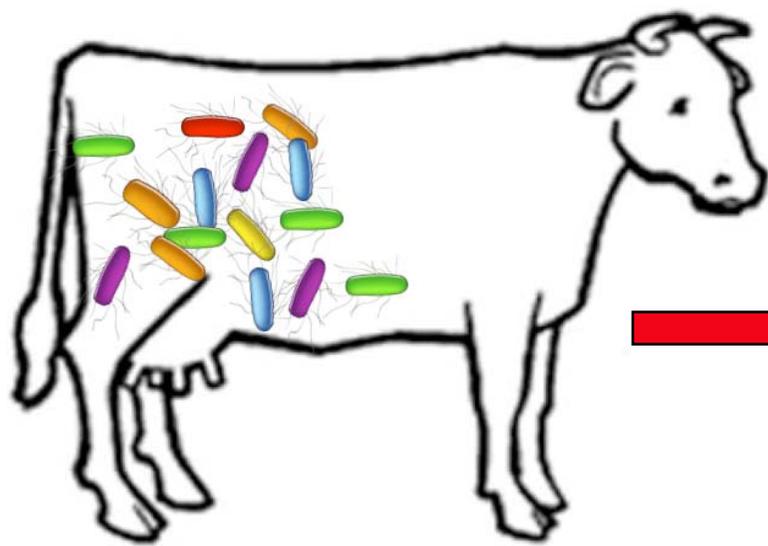


# VTEC vie di trasmissione

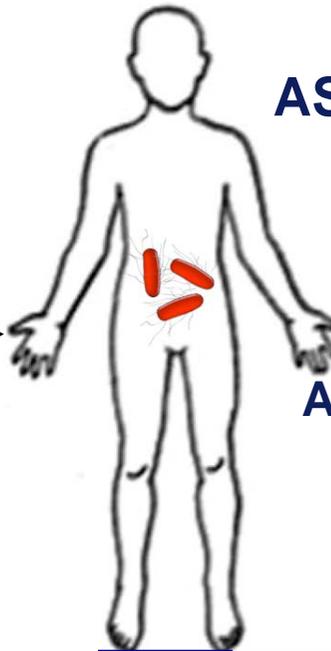
**Contatto Diretto con i ruminanti**  
**Visita ad aziende agricole - *petting* zoos**



# Tutti i sierogruppi VTEC sono patogeni per l'uomo?

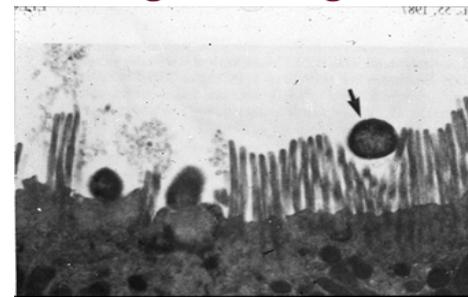


**VTEC**  
**>100 serogroups**  
**in the reservoir**



**VTEC**  
**ASSOCIATED WITH SEVERE**  
**DISEASE (BD, HUS)**

**Additional virulence properties**  
*Attaching/Effacing adhesion*



**O157**  
**O26, O111, O103, O145, ....**



European Centre for Disease Prevention and Control



International surveillance network for human infections with *Salmonella*, VTEC, and *Campylobacter*.

Sorveglianza Europea delle infezioni da VTEC

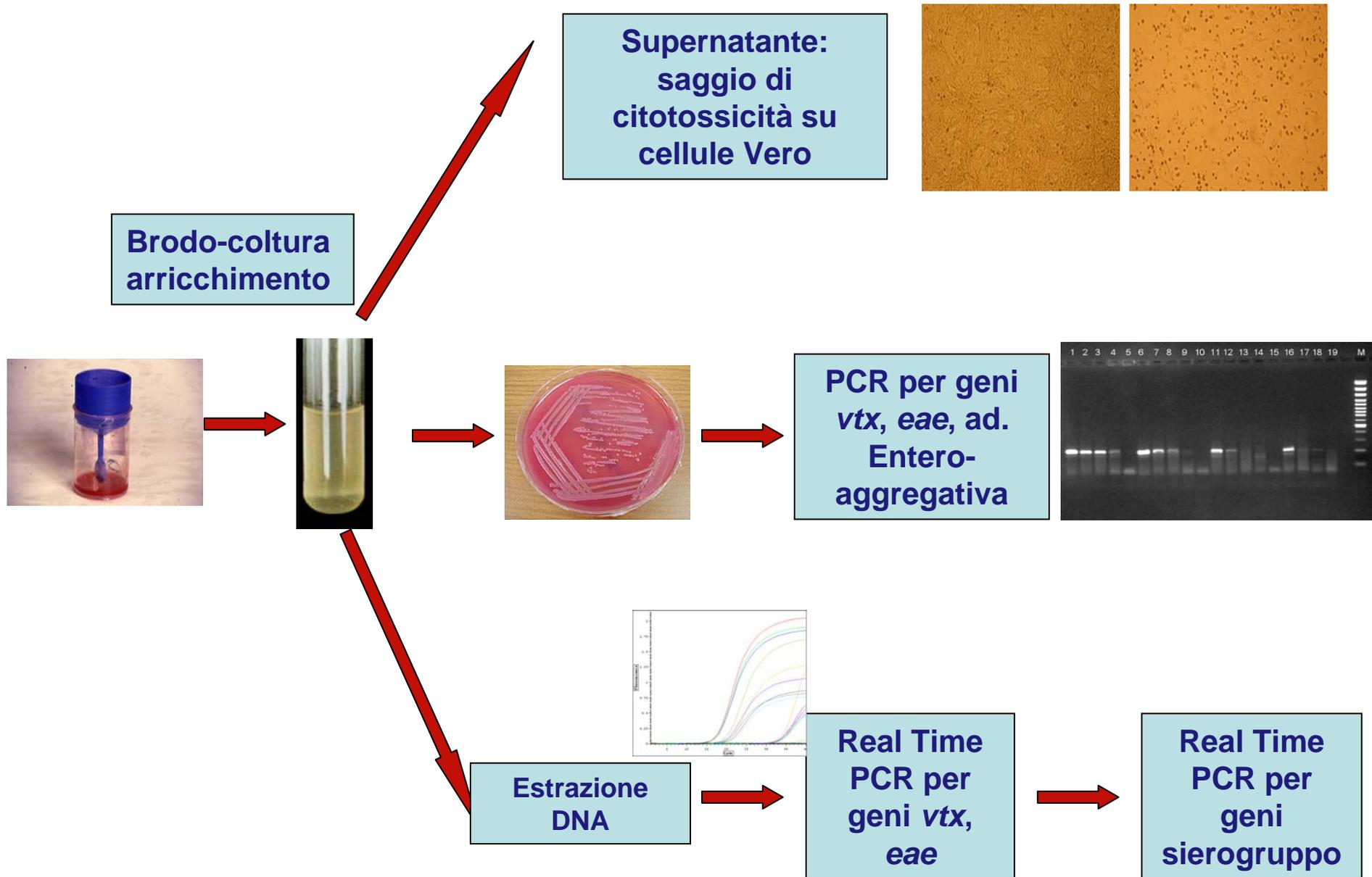


dal 2007



Foodborne and Waterborne Diseases Network

# Diagnosi di laboratorio infezione da VTEC (ISS)



***E. coli* enteritogeni: pato-gruppi**

***E. coli* entero-emorragici (VTEC-EHEC)**

**Geni *vtx*, *eae***

***E. coli* entero-patogeni (EPEC)**

**Gene *eae***

***E. coli* entero-aggregativi (EAEC)**

**Gene *eagg***



# Sorveglianza europea delle infezioni da VTEC



Contact | Sitemap | Links | RSS Feeds

Font: [A] [B] | Accessibil

European Centre for  
Disease Prevention and Control

Go to extranet  
Help / Register

- Home
- About Us
- Activities
- Health Topics
- Publications
- Press Centre

ECDC Portal > English > Health Topics

## VTEC - Verocytotoxinogenic Escherichia coli infection



Escherichia coli (E.coli) are very common bacteria in the gastrointestinal tract, and part of the normal bacterial flora. However, some E.coli strains are able to produce a toxin that could produce serious infection. The main reservoir of such E.coli strains is grass-feeding animals, cattle in particular. Their meat might become contaminated by faecal matter due to poor processing methods during slaughter, and their faeces might end up contaminating other foods (e.g. milk, vegetables) and water.

ECDC

Humans acquire the infection by consuming contaminated food or water. Following an incubation period of about 3–4 days, a variety of gastrointestinal symptoms appear, ranging from mild to severe bloody diarrhoea, mostly without fever. However, about 8% of patients (children under five years old and the elderly being the most susceptible) may develop "haemolytic uraemic syndrome" (HUS), characterised by acute kidney failure, bleeding and neurological symptoms. Antibiotic therapy is not helpful (it might even favour HUS development). The death rate of HUS is about 3–5%.

Outbreaks of VTEC have been reported worldwide, in many cases as a result of direct contact with infected animals and swimming outdoors in contaminated surface waters. Controls on farms are important to prevent VTEC introduction into the food chain. Good hygiene practices in meat processing and food handling are essential.

### RELATED NEWS

#### Networking Europe to help prevent food and water borne diseases

02 Oct 2008

[→ Read more...](#)

[→ View all news](#)

### RELATED PUBLICATIONS

#### Food and Waterborne Diseases - Quarterly STEC/VTEC Report 07/Q3

18 Mar 2008

[→ Read more...](#)

[Enter-net Quarterly VTEC Report 07/2](#)

<b>O157</b>	<b>52.9 %</b>
<b>O26</b>	<b>5.2 %</b>
<b>O103</b>	<b>2.8 %</b>
<b>O91</b>	<b>1.6 %</b>
<b>O145</b>	<b>1.6 %</b>
<b>O111</b>	<b>1.4 %</b>
<b>O128</b>	<b>0.9 %</b>
<b>O146</b>	<b>0.8 %</b>

**VTEC infections by serogroup**

**2008 N = 3,159**

<b>O157</b>	<b>52.6 %</b>
<b>O26</b>	<b>7.2 %</b>
<b>O103</b>	<b>4.3 %</b>
<b>O91</b>	<b>3.4 %</b>
<b>O145</b>	<b>2.6 %</b>
<b>O111</b>	<b>1.2 %</b>
<b>O146</b>	<b>1.0 %</b>
<b>O113</b>	<b>0.9 %</b>

**VTEC infections by serogroup**

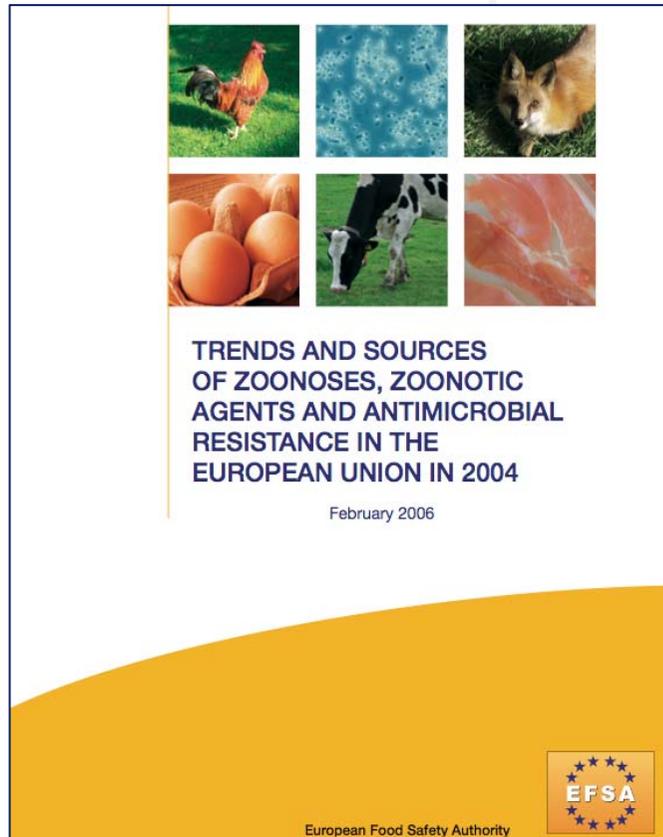
**2006-2007, N = 6,262**

**VTEC infections reported from 21 EU Member States,  
by clinical presentation (Enter-net, 2004-2005)**

	<b>Diarrhea</b>	<b>Bloody diarrhea</b>	<b>HUS</b>	<b>No Symptoms</b>	<b>Total</b>
<b>O157</b>	<b>31%</b>	<b>39%</b>	<b>22%</b>	<b>8%</b>	<b>584</b>
<b>Non O157</b>	<b>69%</b>	<b>13%</b>	<b>13%</b>	<b>5%</b>	<b>523</b>

# La direttiva europea sulle zoonosi (Dir. 99/2003 EU)

## Monitoraggio e sorveglianza degli agenti di zoonosi Indagine dei rischi alimentari i nell'uomo



# Agenti di zoonosi a trasmissione alimentare EU - IT

<i>casi</i>	<i>EU (2007)*</i>	<i>Italia</i>
Campylobacteriosi	203.708	676**
Salmonellosi	155.566	6.731**
Epatite A	13.952	1.159***
Yersiniosi	8.874	-
Shigellosi	8.079	-
Criptosporidiosi	6.253	-
→ Infezioni da E.coli (VTEC)	2.945	61**
Listeriosi	1.635	89***
Infezioni da Norovirus	?	-



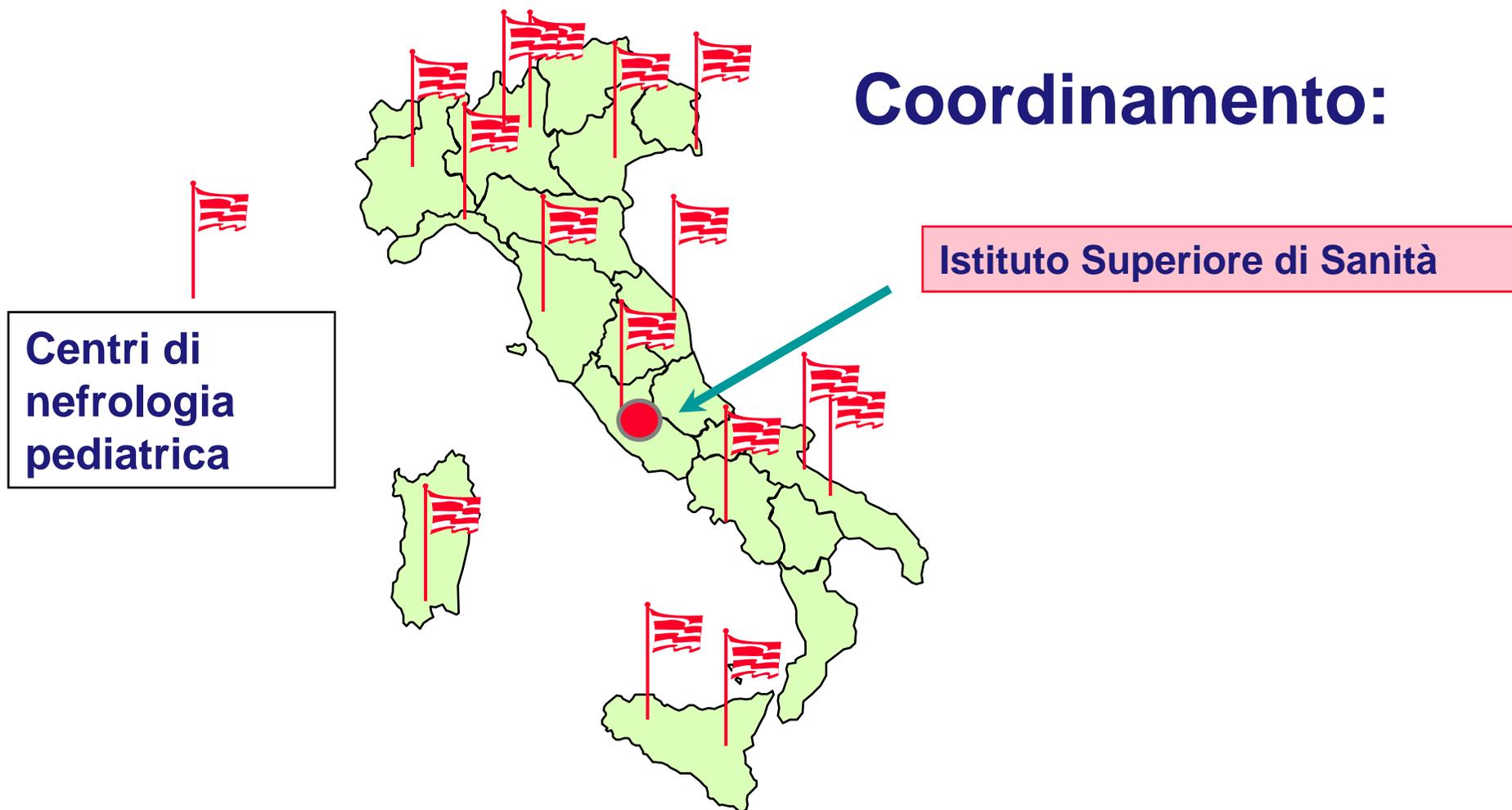
\* *ECDC - Annual Epidemiological Report on communicable diseases in Europe (2009)*

\*\* *EnterNet Italia*

\*\*\* *Notifiche Ufficiali (SIMI)*

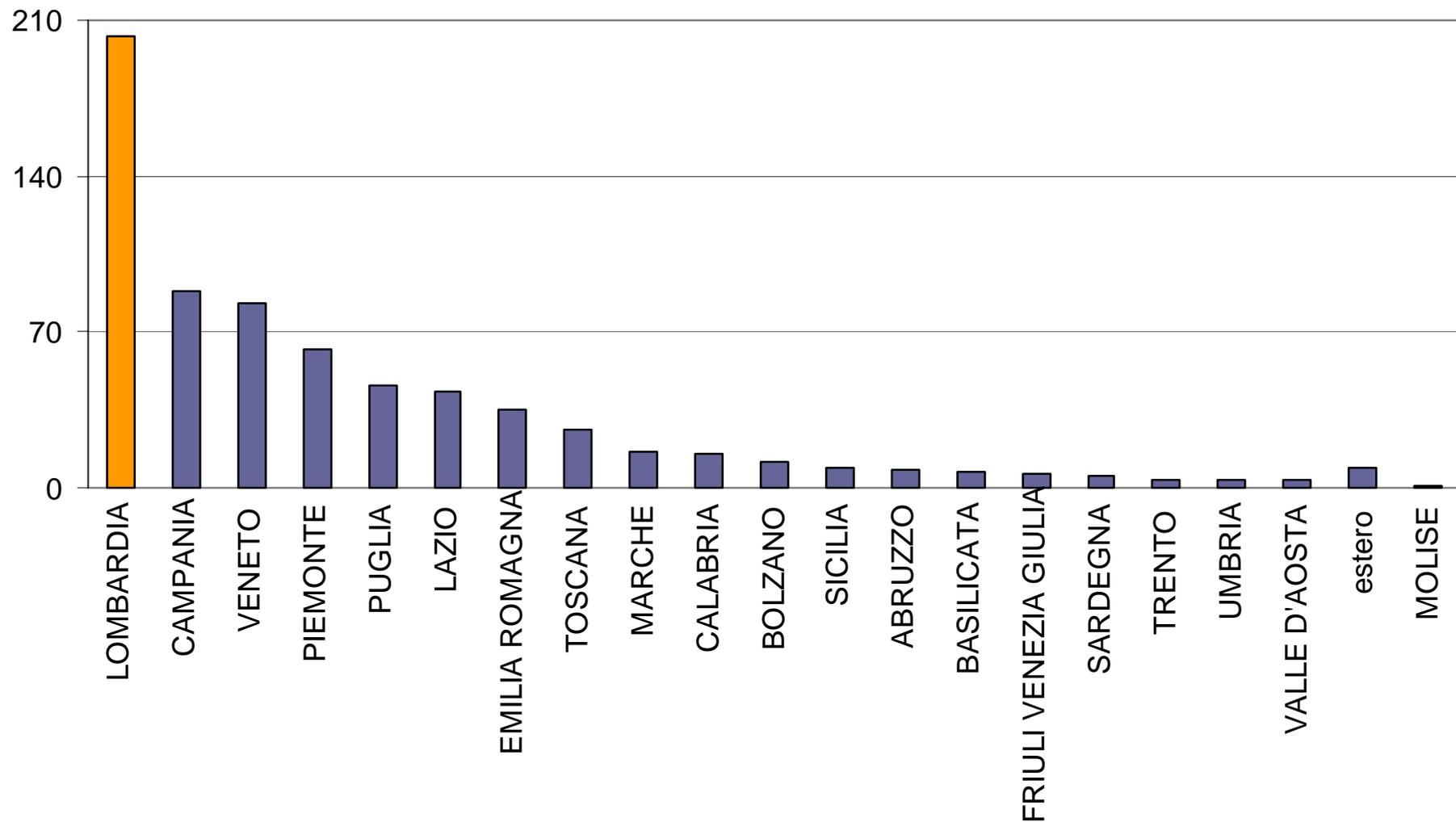
- In Italia le infezioni da VTEC sono notificabile in classe II come “diarree infettive non da Salmonella”
- soggette a forte sottotifica !!!

# Registro Italiano della SEU pediatrica in Italia (SINP)



# Geografia della SEU pediatrica in Italia

Distribuzione dei casi dei SEU (n=721) per regione (1988 – 2010)

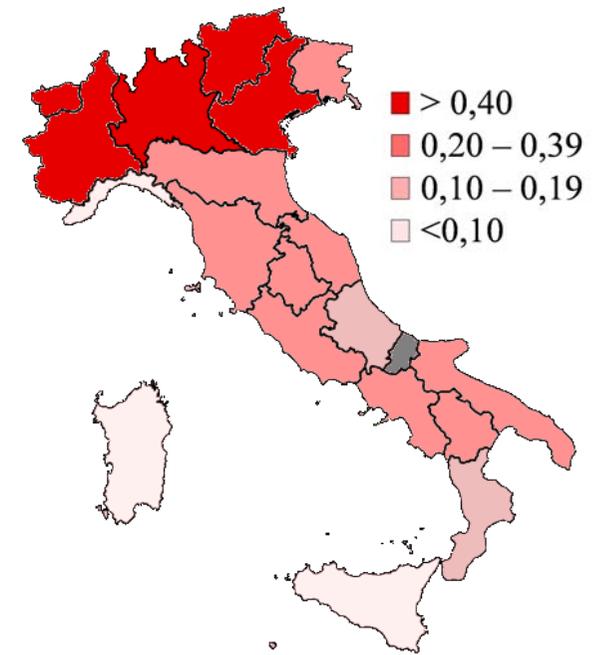


# Sorveglianza nazionale della SEU pediatrica (1988 – 2010)

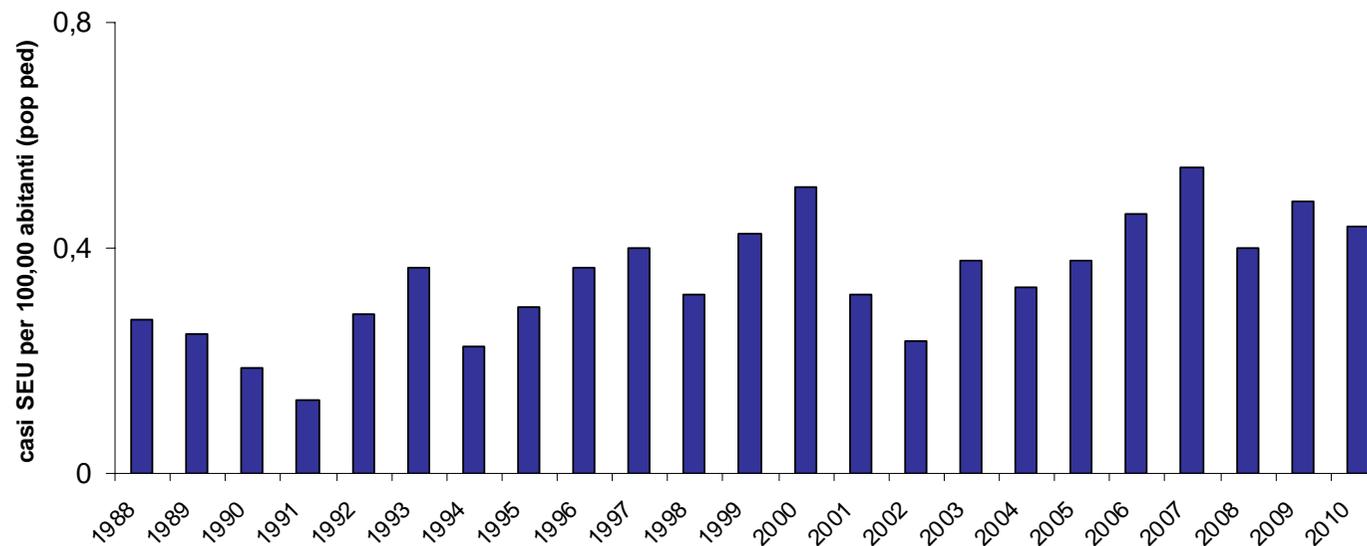
- **Tasso medio annuale d'incidenza SEU:**

✓ Italia

0,35 casi x 100.000



Incidenza annuale casi SEU in Italia



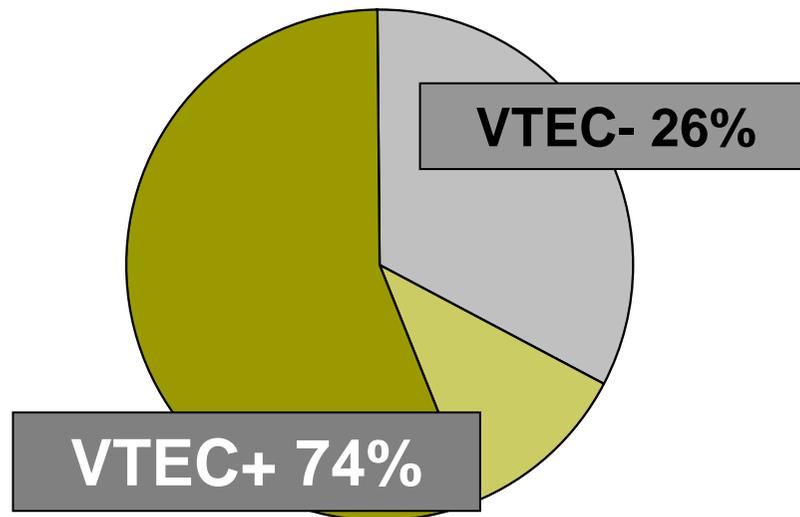
## Sorveglianza nazionale della SEU pediatrica (1988 – 2010)

- Casi registrati: 721
- Età mediana: 25 mesi
- Sesso: 52%M 48%F
- Sintomi all'esordio:
  - ✓ **Diarrea emorragica** 45%
  - ✓ Diarrea acquosa 36%
  - ✓ No diarrea 19%



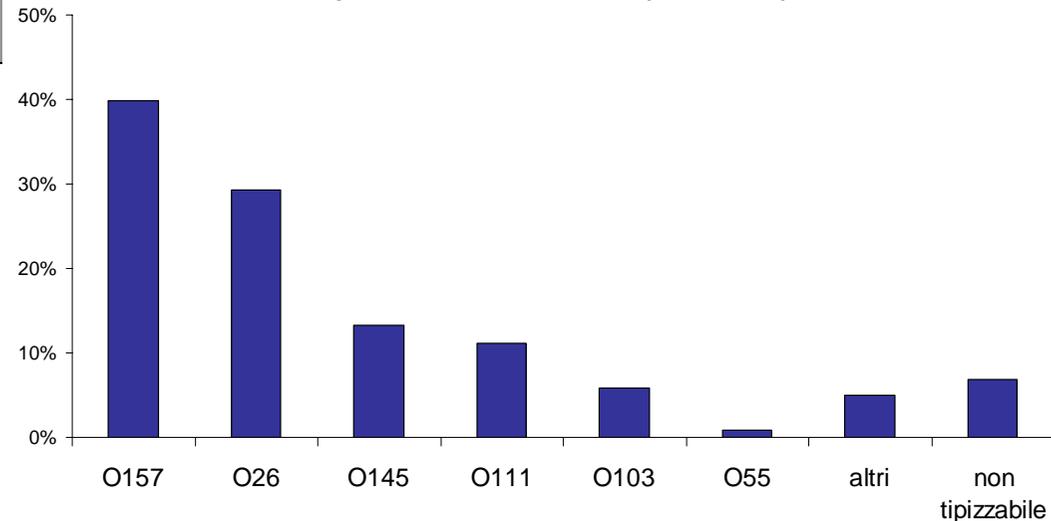
## Diagnostica nei casi di SEU (1988 – 2010)

- Pazienti esaminati per VTEC: 641
- Evidenza di infezione VTEC: 471 (74%)  
    identificazione del sierogruppo VTEC: 82%  
    sierogruppo VTEC non noto: 13%

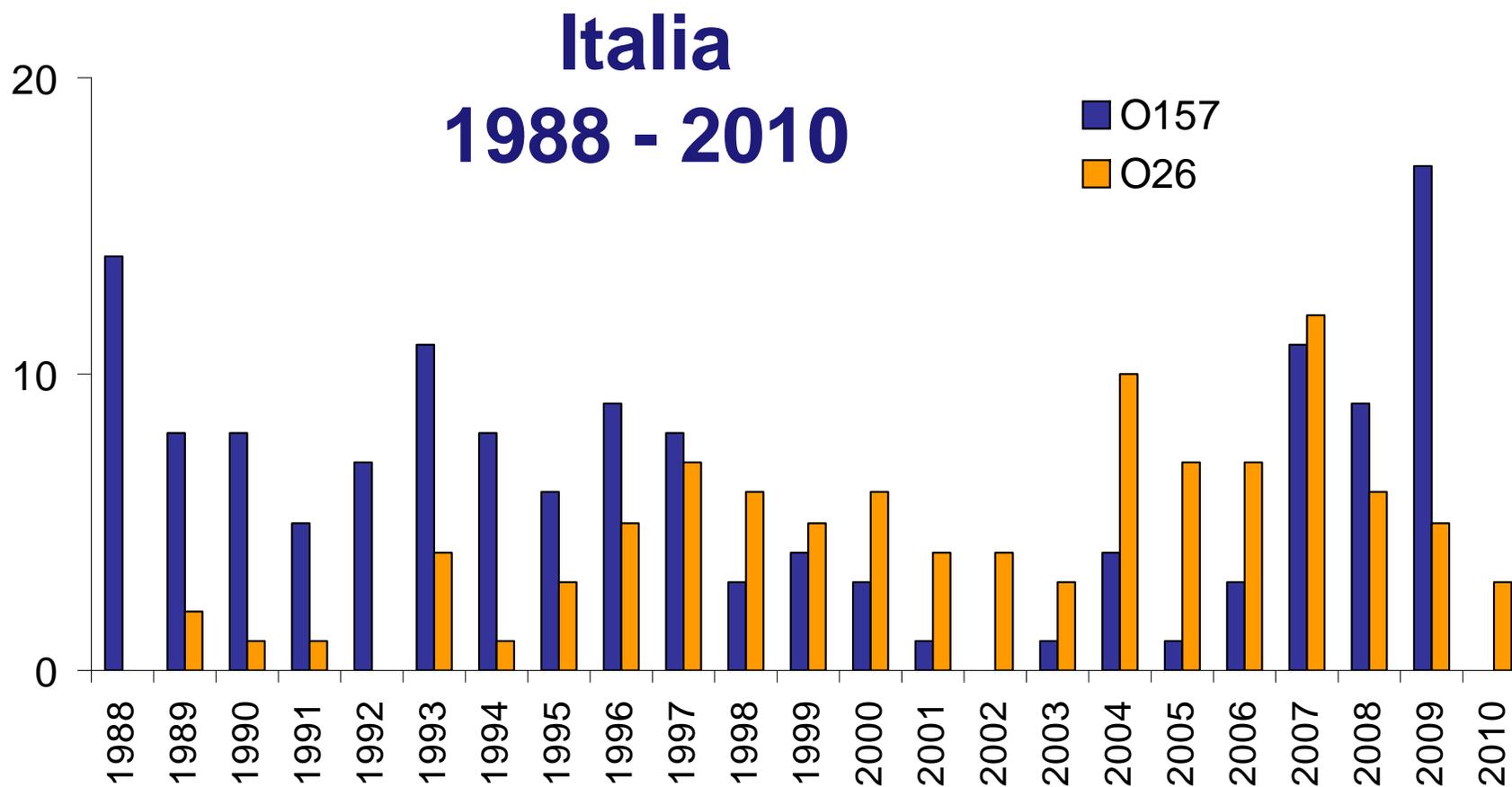


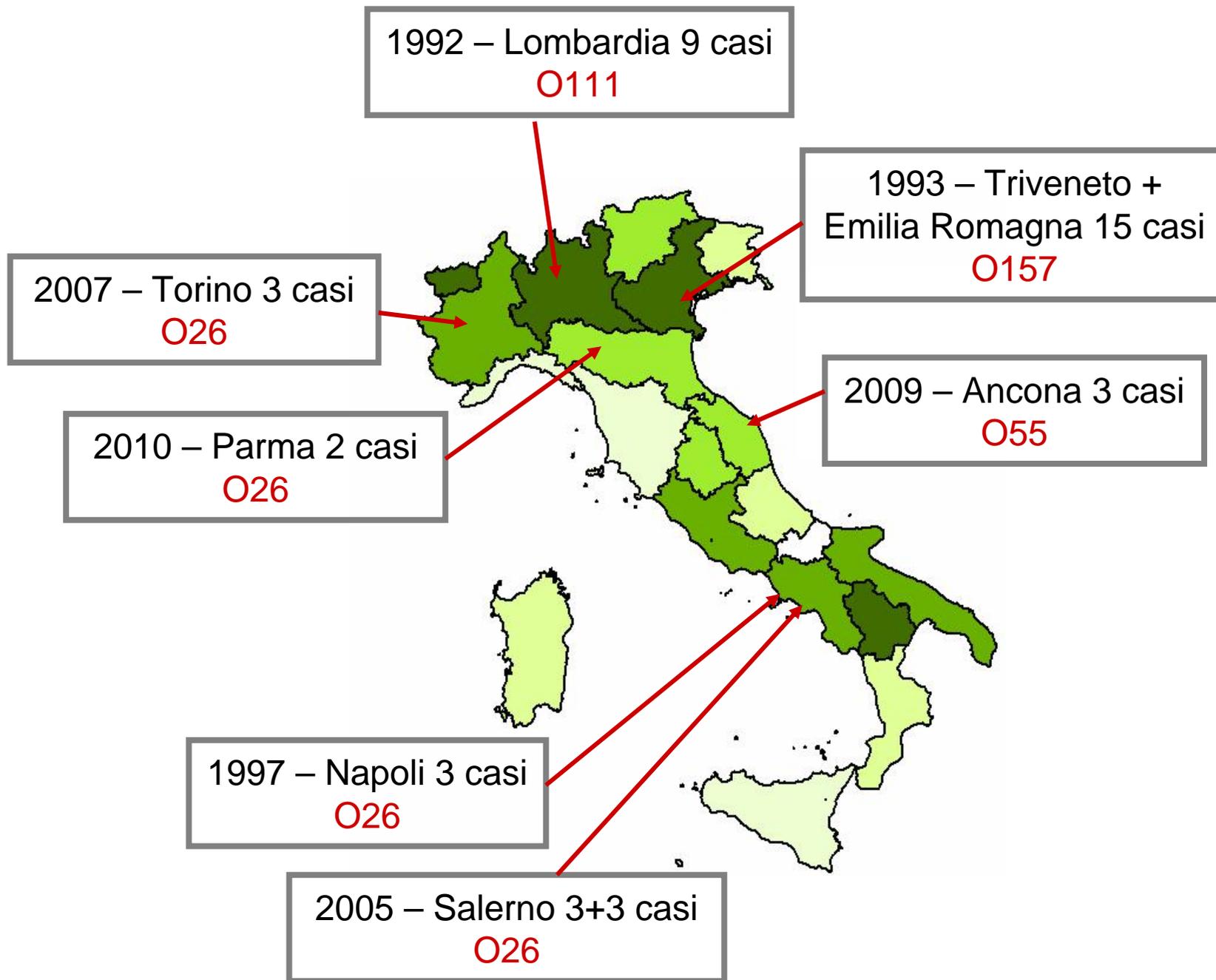
N=610

Distribuzione sierogruppi VTEC diagnosticati  
in pazienti con SEU in Italia (1988 -2010)



# Casi di SEU associati a VTEC O157 e VTEC O26





## La sorveglianza della SEU nel 2010

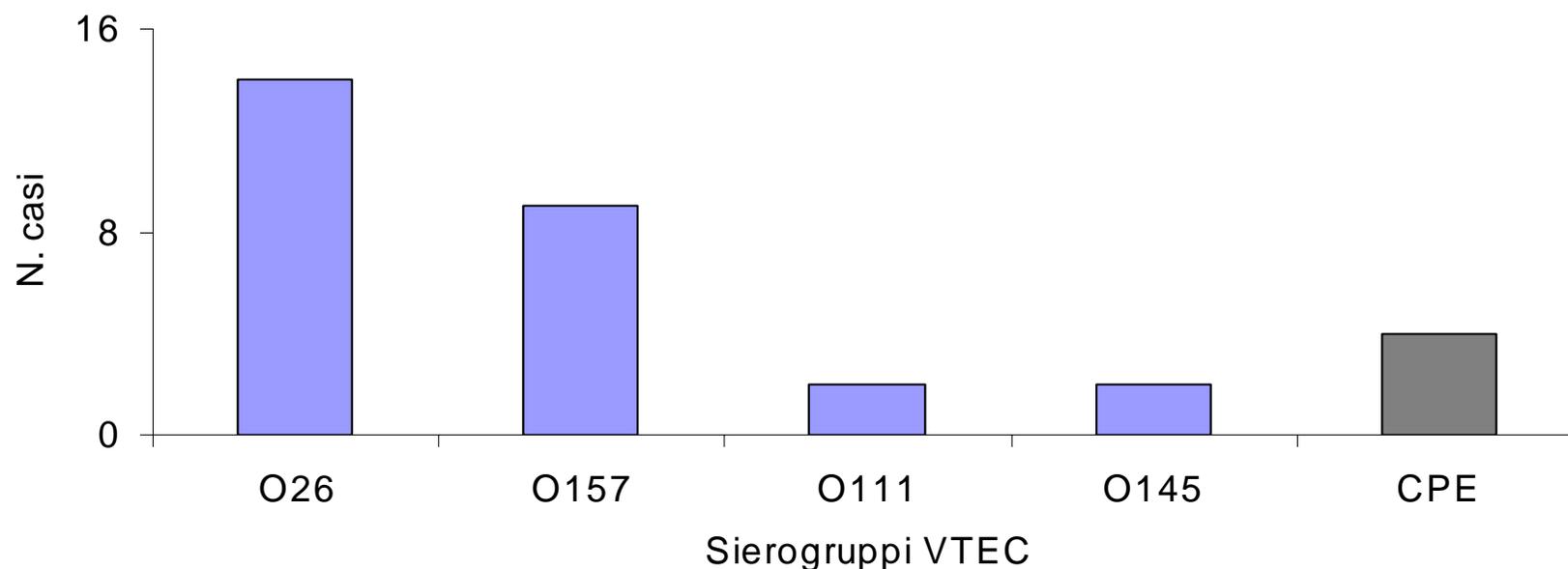
- 44 casi di SEU registrati nel 2010
- 11 Centri di Nefrologia
- età mediana dei pazienti 32 mesi
- Diarrea prodromica presente nel 92% dei casi (N=39)
- Diarrea emorragica presente nel 66% dei casi
- 2 casi fatali (in fase acuta)



## Diagnostica VTEC nei casi di SEU (2010)

- **Casi con campioni esaminati: 40 (91%)**
- **30 casi VTEC + (75%)**
- **in 26 casi era disponibile l'informazione sul sierogruppo VTEC**

### Distribuzione sierogruppi VTEC nei casi di SEU





# EU-RL - VTEC



**Alfredo Caprioli**

Stefano Morabito

Gaia Scavia

Mariangela Tozzoli

Fabio Minelli

Maria Luisa Marziano

Susan Babsa

Clarissa Ferreri

