



Trend and sources of VTEC in the EU: the EFSA 2007 report

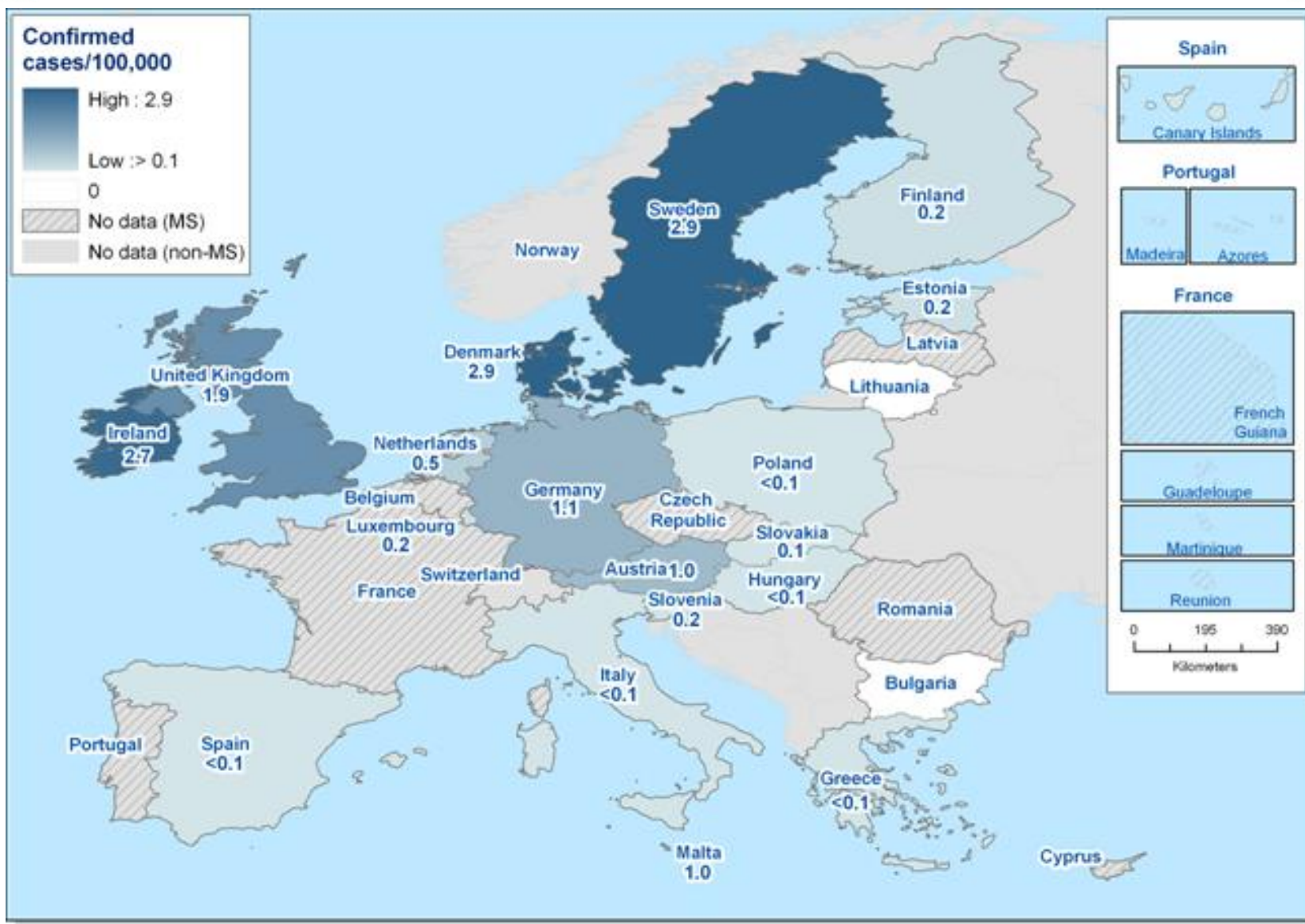
Rome, Italy
5 December 2008

Reported VTEC cases in humans, 2003-2007

Country	Report Type ²	Cases	Confirmed Cases	2007 Cases/ 100,000	2006 Confirmed cases	2005	2004	2003 Cases
Austria	C	82	82	1.0	41	53	45	28
Belgium	-	-	-		47		36	39
Bulgaria ³	NA	0	0	0.0				
Cyprus	-	-	-					
Czech Republic	-	-	-		1,558		1,743	
Denmark	C	161	156	2.9	146	154	163	128
Estonia	C	3	3	0.2	8	19	0	
Finland	C	12	12	0.2	14	21	10	14
France	-	-	-		67			
Germany	C	870	870	1.1	1,183	1,162	903	1,100
Greece	C	1	1	<0.1	1			
Hungary	C	1	1	<0.1	3	5	12	20
Ireland	C	167	115	2.7	153	125	61	95
Italy	C	61	27	<0.1	17		3	5
Latvia	-	-	-					
Lithuania	NA	0	0	0.0	0			
Luxembourg	C	1	1	0.2	2	8		
Malta	C	4	4	1.0	21	23		
Netherlands	C	88	88	0.5	41	64	30	51
Poland	C	2	2	<0.1	4	4	3	
Portugal	- ⁴	-	-					
Romania ³	- ⁴	-	-					
Slovakia	C	6	6	0.1	8	61	4	1
Slovenia	C	4	4	0.2	30		2	
Spain	C	18	18	<0.1	13	16		
Sweden	C	262	262	2.9	265	336	149	52
United Kingdom	C	1,149	1,149	1.9	1,294	1,171	926	974
EU Total		2,892	2,801	0.7	4,916	3,222	4,090	2,507
Iceland	C	13	13		1			
Liechtenstein	-	-	-					
Norway	C	26	26		50	18	12	15
Switzerland	C				48	62	45	56

- 20 MSs
- 2 non-MSs
- 2,801 VTEC cases
- 43% decrease
- Czech Republic
- Notification rate:
0.7 cases/100,000
- **UK+DE: 72% cases**

Geographical distribution of the VTEC notification rates in humans



Reported confirmed VTEC cases in humans by serogroup (top 10), 2006-2007

2007				2006			
Serogroup	No. cases	% Total	% Known	Serogroup	No. cases	% Total	% Known
O157	1,339	77.8	77.8	O157	1,635	33.7	46.5
NT	184	10.7	10.7	O26	574	11.8	16.3
O26	53	3.1	3.1	O126	183	3.8	5.2
O103	26	1.5	1.5	O55	150	3.1	4.3
O91	13	0.8	0.8	O127	135	2.8	3.8
O121	10	0.6	0.6	O25	129	2.7	3.7
O128	9	0.5	0.5	O103	87	1.8	2.5
O146	9	0.5	0.5	O128	87	1.8	2.5
O145	8	0.5	0.5	O119	86	1.8	2.4
O113	7	0.4	0.4	Other	448	9.2	12.7
Other	62	3.6	3.6	Unknown	1,338	-	-
Unknown	0	0.0	0.0				
Total	1,720			Total	4,852		

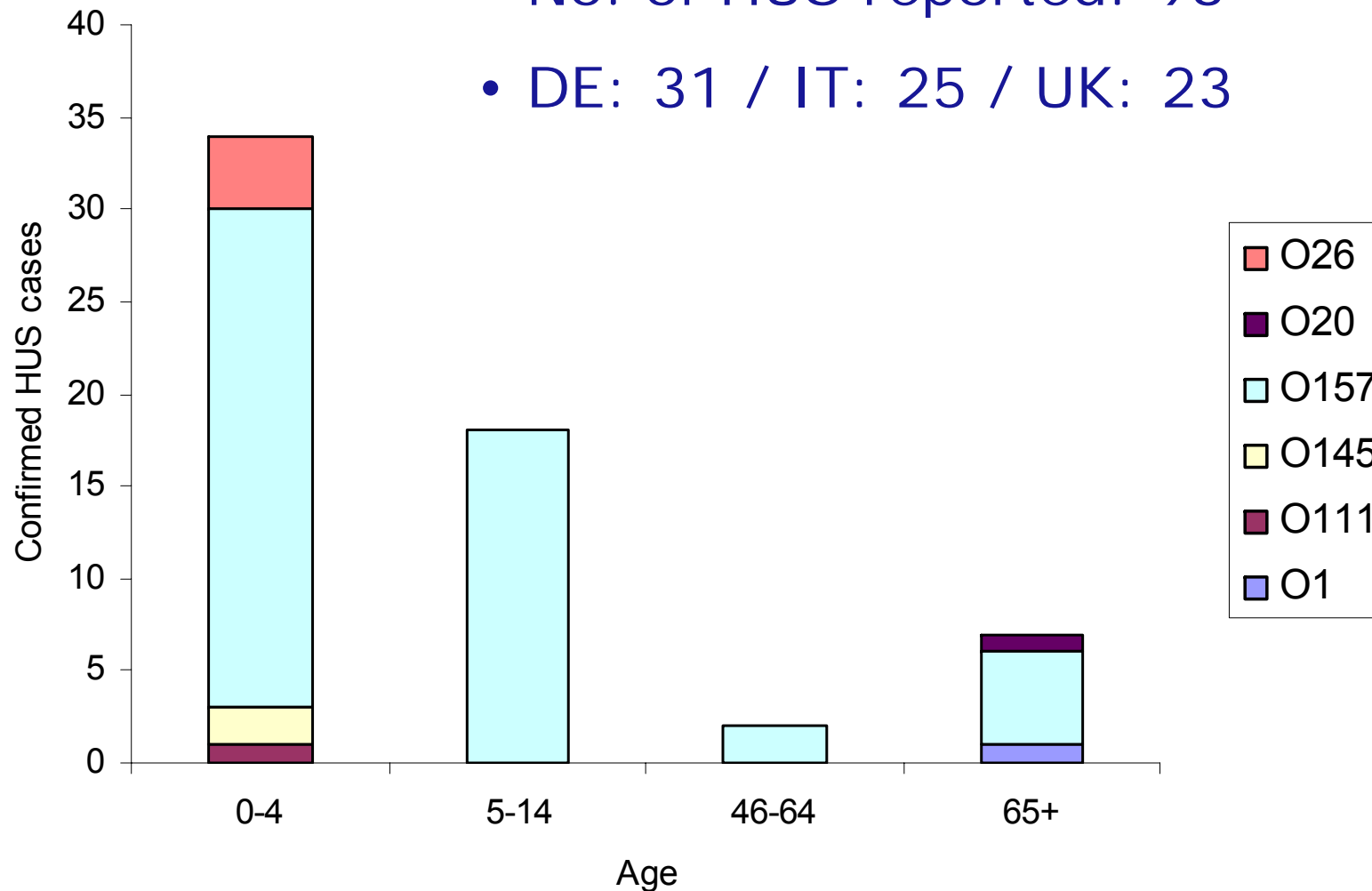
Source: Denmark, Finland, Italy, Luxembourg, the Netherlands, Poland, Slovenia, Spain, Sweden and the United Kingdom
 NT = untyped / untypeable

VTEC serogroups in human cases by country, 2007

Country	Serogroup										
	O157	NT	O26	O103	O91	O121	O128	O146	O145	O113	Other
Denmark	25	1	28	16	9	3	8	8	5	5	48
Finland	9	3									
Italy	5	20	1								1
Luxembourg	1										
Netherlands	80	1	3	3	1						
Poland	2										
Slovenia											4
Spain	12		7								
Sweden	85	138	13	6	3	7	1	1	1	2	5
United Kingdom	1120	21	1	1					2		4
Total	1,339	184	53	26	13	10	9	9	8	7	62
Iceland		13									
Norway	5	7	3	1			2	1	4		3

Haemolytic Uremic Syndrome (HUS) by age and serogroup in reporting MSs, 2007

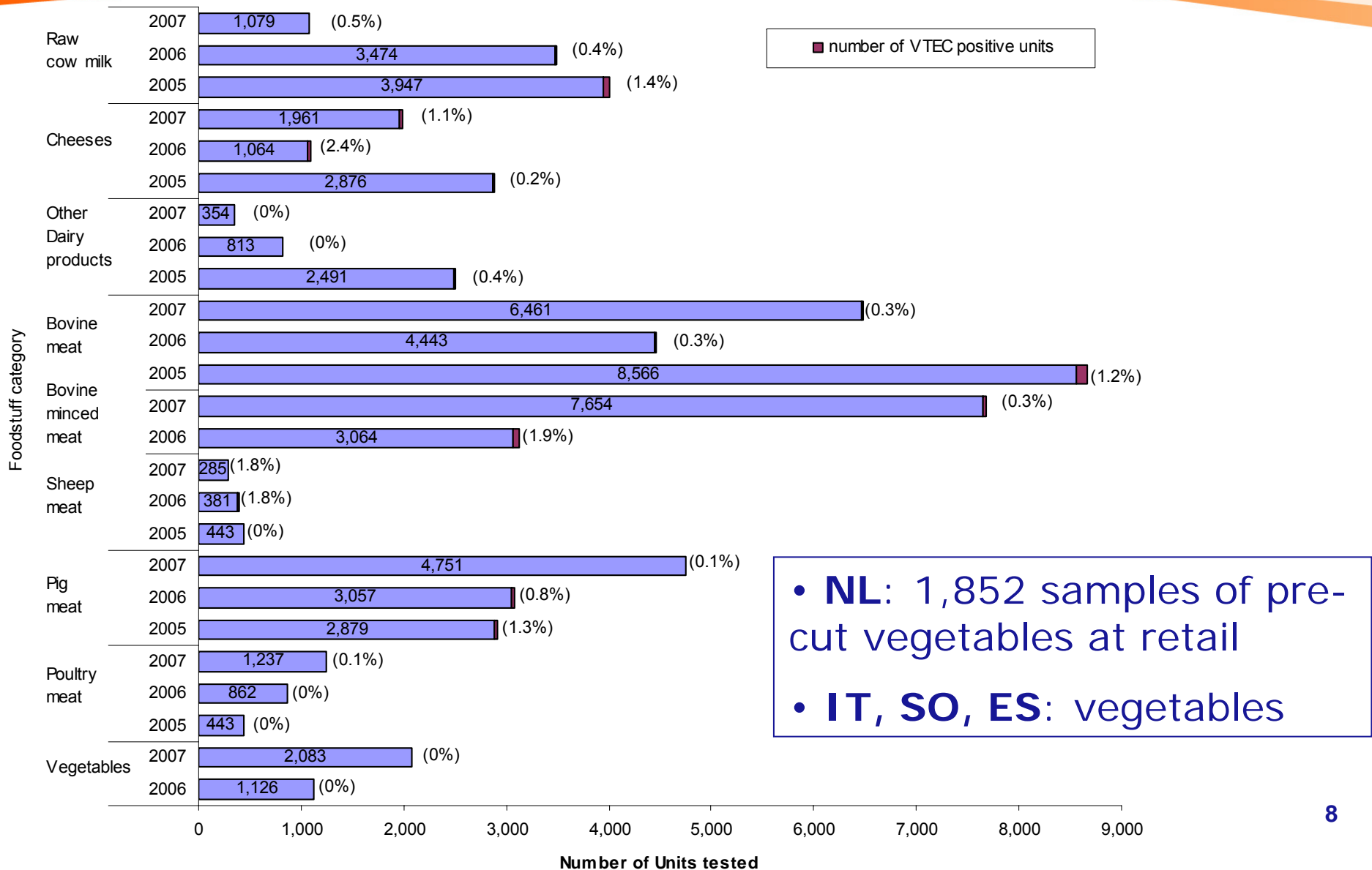
- No. of HUS reported: 93
- DE: 31 / IT: 25 / UK: 23



Source: Denmark, Germany, Hungary, Ireland, Italy, the Netherlands, Slovenia and the United Kingdom. (N = 93)

- **Reporting**
 - Data on VTEC in food:
 - 20 MSs
 - 1 non-MS
 - Data on VTEC in animals:
 - 14 MSs
- **Difficulties in interpreting VTEC data**
 - Lack of comparability, especially between countries
 - Differences occur in:
 - sampling strategies
 - applied analytical methods
 - Most widely used analytical method: *E. coli* O157
 - A few investigations: all serotypes of VTEC

Number of food samples tested for VTEC by food category and proportion of positives



VTEC in fresh bovine meat, 2007

Country	Description	No.	VTEC		VTEC O157		Comment
			Pos	%Pos	Pos	%Pos	
At slaughter, cutting/processing plant							
Belgium	fresh	286	0		0		
	fresh	1,611	6	0.4	4	0.2	Swab samples 1600 cm ² : O157(4) and unspecified (2)
Bulgaria	fresh	148	0		0		
	minced meat	1,529	4	0.3	0		Intended to be eaten raw
Czech Republic	fresh	536	0		0		
France	minced meat	3,605	11	0.3	5	0.1	Intended to be eaten raw: O157(5), O103(3), O26(2) and O111(1)
Hungary	fresh	144	0		0		
Romania	minced meat	58	0		0		Intended to be eaten raw
	fresh	1,890	0		0		
Slovenia	fresh	164	0		0		
Spain	fresh	57	1	1.8	1	1.8	
	fresh	144	0		0		
At retail							
Belgium	minced meat	152	0		0		Intended to be eaten raw
Germany	fresh	111	3	2.7	0		Serotype not specified
	minced meat	347	8	2.3	0		Intended to be eaten raw: O113(1) and unspecified (7)
Ireland	minced meat	38	0		0		
Netherlands	fresh	271	0		0		
	minced meat	340	0		0		
	minced meat	921	1	0.1	1	0.1	Intended to be eaten raw
Slovenia	fresh	385	4	1	0		
Spain	fresh	69	1	1.4	0		Serotype not specified
Level of sampling not specified							
Germany		142	4	2.8	0		Serotype not specified
Hungary	minced meat	97	0		0		Intended to be eaten cooked
Italy		55	0		0		
	minced meat	129	0		0		Intended to be eaten cooked
	minced meat	391	0		0		Intended to be eaten raw
	fresh	448	0		0		
Slovakia	minced meat	47	0		0		
Total		14,115	43	0.3	11	0.1	

- 13 MSs provided data
- 7 MSs reported VTEC
- O157
- O26, O103, O111, O113
- also isolated from human cases with VTEC infections

VTEC in cattle, 2007

Country	Unit	No.	VTEC		VTEC O157		Comment
			Pos	%Pos	Pos	%Pos	
Calves							
Austria	Animal	44	1	2.3	0		O150
Denmark	Animal	186	14	7.5	14	7.5	
Germany	Animal	371	0		0		
Netherlands	Holding	174	23	13.2	23	13.2	
Dairy cows							
Estonia	Animal	162	0		0		
Germany	Animal	728	0		0		
Netherlands	holding	157	6	3.8	6	3.8	
Meat production animals							
Lithuania	Animal	96	0		0		
Spain	Animal	312	53	17.0	53	17.0	
Not specified							
Finland	Animal	1,534	19	1.2	19	1.2	O157
Germany	Animal	1,204	33	2.7	0		O91 (4), unspecified (29)
Italy	Animal	27	3	11.1	1	3.7	O157 (1), unspecified (2)
Italy	Herd	228	16	7.0	6	2.6	O157 (6), unspecified (10)
Luxembourg	Animal	240	53	22.1	53	22.1	
Portugal	Animal	52	0		0		
Slovenia	Animal	198	12	6.1	12	6.1	
Total	Animal	5,154	188	3.6	152	2.9	
	Herd/holding	559	45	8.1	35	6.3	

- Faecal samples
- Abattoir
- Few data on non-O157

1. Data are only presented for sample size ≥ 25

- **Sheep and Goats**
 - VTEC positive sheep: 1.4%
 - VTEC positive goats: 4.2%
 - No VTEC O157 reported from sheep and goats

- **Pigs**
 - VTEC O157 proportion of positive: 0.1%

- **Instability in data reporting on human infections**
 - Sets of reporting MSs vary over the years
 - Absence of surveillance system for VTEC infections
 - Difficulties in analysing trends :
 - Notification rates,
 - Most common VTEC serogroups in humans at EU level
- **Sparse information on VTEC in animals and food**
 - Most of the time, VTEC O157 is only specified
 - Information on other serogroups is rare
 - Difficulties in assessing health risk of VTEC presence
- **Guidelines for monitoring VTEC in animals and food**
 - Recent opinion from the BIOHAZ panel

- **National competent authorities**
 - Public health
 - Animal health and Food Safety
- **ECDC**
- **Zoonoses Collaborative Centre of EFSA**
- Zoonoses Report for 2007 published soon



Thank you for your attention!



Technical specifications for monitoring and reporting of verotoxigenic E. Coli (VTEC) in animals and food

Rome, Italy
5 December 2008

- **Opinion of BIOHAZ panel issued on 18.10.2007**
- **Zoonoses Task Force**
 - To proceed to preparation of harmonised specifications
 - To improve the usability and quality of data collected
 - To facilitate a better analysis of the situation at EU level
- **Terms of reference**
 - Issue a report on specifications for harmonised monitoring and reporting of VTEC in the most relevant animals and/or foodstuffs to be applied under Directive 2003/99/EC
 - Consider the VTEC types to be covered by the monitoring and reporting
 - Provide recommendations for further development of the monitoring
 - Expert Working Group

- **The primary objective of the monitoring scheme is to:**
 - Determine the prevalence of VTEC O157 serogroup on the hide of young cattle and fleece of sheep, at the stage of slaughter within the Member States and in the EU.
- **The secondary objectives are to:**
 - Determine the prevalence of the VTEC non-O157 serogroups of O26, O103, O111, and O145 on hide of young cattle and fleece of sheep at the stage of slaughter within the Member States and in the EU.
 - Gather data on the occurrence of the VTEC O157, as well as the occurrence of VTEC serogroups of O26, O103, O111, and O145, in foodstuff categories that are most likely to be contaminated with VTEC,
 - Assess temporal trends in the VTEC prevalence on hide of cattle and fleece of sheep and, if possible, in occurrence in foodstuffs.

- **Study populations**
 - Cattle and sheep
 - Assumed to be important reservoirs of VTEC
 - Substantial cattle/sheep industry in most MSs/a number of them
 - Stable populations over time
 - Age of animals: younger animals have higher prevalence
 - Cattle: animals between 3-24 months
 - Sheep: animals between 4-12 months
 - Sampling period:
 - Cattle: between April 1st and October 1st
 - Sheep: slaughter of sheep is seasonal in many MSs

- **Samples: Faecal Material vs. Hide/Fleece**
 - **Faeces samples**
 - Carriage of *E. coli* O157
 - Low prevalence expected in most MSs => high number of samples
 - **Risk-based sampling approach considered more relevant**
 - To target a sub-population of higher prevalence => lower sample size
 - **Hide/Fleece samples chosen**
 - A more important source of carcass contamination than faecal carriage
 - Brisket area:
 - Most contaminated parts of the hide/fleece
 - Site from which there is a high risk for transfer of pathogens during dressing

- **Sample sizes and sampling plan**
 - Primary objective: estimating prevalence of hide/fleece contamination
 - A priori prevalence: 12% with 4% accuracy
 - => 254 samples from cattle and 254 samples from sheep
- **Stratified sampling plan**
 - Random sampling of eligible animals during the eligible period of survey
 - Abattoir slaughtering more than 100 cattle/sheep a month
 - Proportional allocation of the abattoir sample size to the annual throughput

- **VTEC serotypes**
 - VTEC O157
 - most reported cause of VTEC associated diseases
 - Most severe cases of disease:
 - Haemorrhagic Colitis,
 - Haemolytic Uremic Syndrome (HUS)
 - O26, O103, O111, O145
 - Frequently recorded as a cause of severe human disease
 - Foodborne and Waterborne Disease Surveillance Network (ECDC)

Recommendations on monitoring of VTEC in foodstuffs

- **Clear need of data**
 - About prevalence/emergence of human pathogenic VTEC in foodstuffs
 - Virulence characterisation and serotyping
- **Specially designed surveys**
 - Adequate number of representative samples
- **Food categories**
 - Carcass samples
 - Fresh meat from ruminants
 - Minced meat and meat preparations
 - Ready-to-eat dried or fermented meats
 - Fresh vegetables and salads
 - Raw milk and cheeses