

Data collection and interpretation for the EU Zoonosis Directive (92/117/EEC)

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Legal basis

Council Directive 92/117/EEC concerning protection measures against certain zoonoses and zoonotic agents

The aim of the Directive 92/117/EEC is:

- to monitor zoonoses and zoonotic agents
- to control certain zoonoses;
- detailed minimum measures to stimulate eradication of *S* Enteritidis and *S* Typhimurium in breeding flocks of poultry (*Gallus gallus*).

to prepare a report on trends and sources of zoonoses and zoonotic agents

Each Member State and Norway has to submit a report by the end of May the following year

Countries provide information based on their national systems

Current system

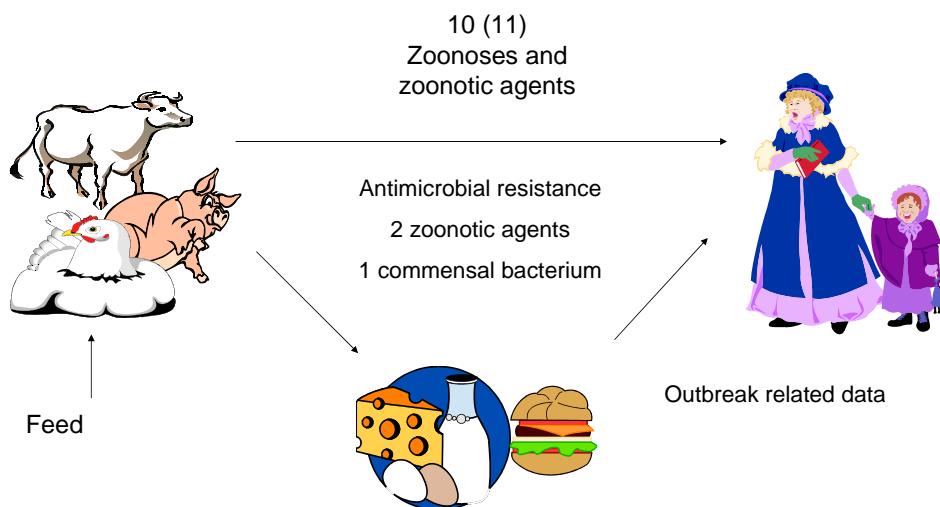
How does it work:

- Little details are fixed in the Directive
 - no compulsory rules for testing (except for poultry breeding flocks)
 - no compulsory rules for reporting
- Recommendations have been developed
 - Manual for reporting gives details on definitions and the content of the report
 - Tables for reporting should be used for standardised data transfer
- Countries respect time table and recommendations to varying degrees
- Problems and analysis are discussed in workshops

How does it not work:

- No voluntary participation
- No feasibility study
- Not focused items reporting is restricted to

What information is collected ?



Zoonoses to be monitored

Tuberculosis due to <i>Mycobacterium bovis</i>	}	obligatory
Brucellosis and agents thereof		
Salmonellosis and agents thereof		
Trichinellosis and agents thereof		
Rabies		
Campylobacteriosis and agents thereof	}	voluntary
Listeriosis and agents thereof		
Yersiniosis and agents thereof		
Echinococcosis and agents thereof		
Toxoplasmosis		
Verotoxigenic <i>Escherichia coli</i> infection		

Reporting on Salmonella

- Feedingstuffs
 - animal derived / vegetable derived feed materials
 - compound feedingstuff (by animal species)
- Animals
 - poultry / cattle / pigs / ... / pets / wildlife
- Food
 - by species of origin / processing stage
- Humans
 - by type of agent, age group, month, clinical manifestation
- Data from Reference Laboratories
 - Source / Type of matrix the isolate is derived of
 - Serotypes / Phagetypes / Antimicrobial resistance patterns

Data sources

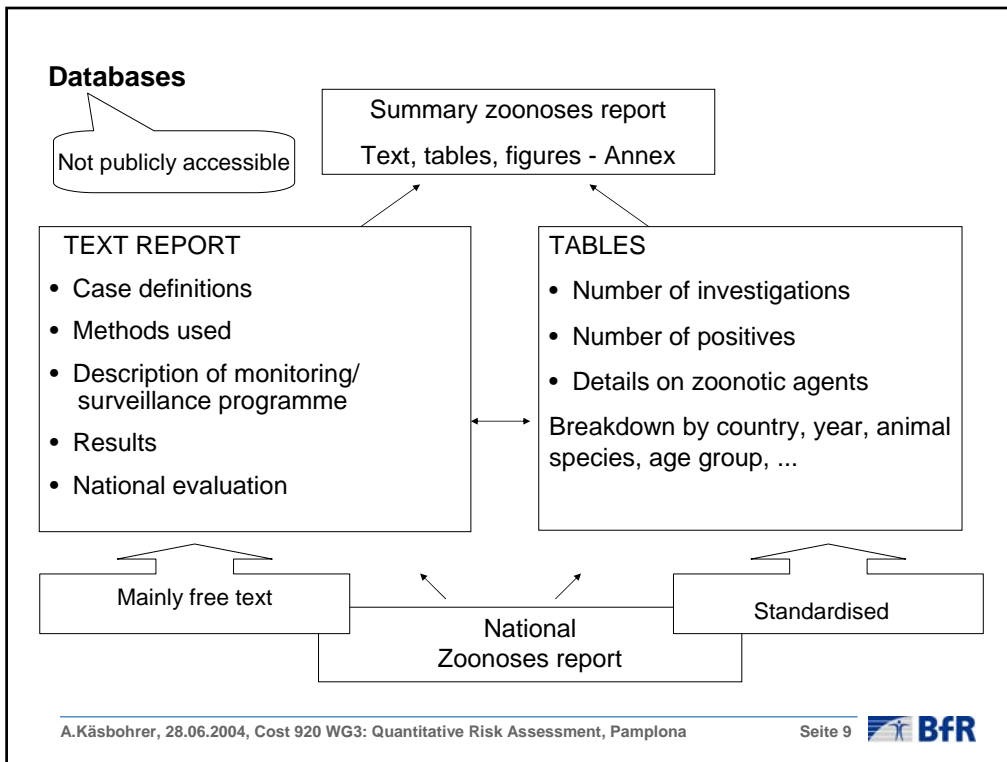
- Notification requirement
- Compulsory monitoring / control programs
- Voluntary monitoring / control programs
- Surveys / studies
- Diagnostic examinations
- National Reference Laboratories

The National report:

- Aggregated data out of these activities
- Level of detail provided is very different

Describing monitoring activities


- Population under study
- Sampling strategy (stratification, random sample, ..)
- Sample size
- Frequency of sampling
- Specimen taken
- Diagnostic methods used
- Requirements for laboratories involved
- Responsibilities
- Results



POULTRY BREEDERS

COUNTRY:

Animal species	Source of information	Remarks	Flocks tested	Flocks positive	S.Enteritidis ³⁾	S.Typhimurium ³⁾	4)	4)
Egg production line								
Elite								
Grandparents								
Parents								
Day-old chicks								
Rearing flocks								
Productive period								
Meat production line								
All breeders (production line not specified)								

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HUMANS

	Cases	Inc.	Autochtone cases	Inc.	Imported cases	Inc.
Salmonellosis						
S. Enteritidis						
S. Typhimurium						
of these: DT 104						
<i>other serotypes</i>						

- Case definition used
- Estimate of underreporting
- Sources of human infection
- Outbreak related data

Foodborne outbreaks

- Total number of outbreaks (general / family) over a year
- Number of ill / death / persons in hospitals in these outbreaks
- The causative agent of the outbreaks
- Foodstuff implicated in the outbreak and other potential vehicles
- Level and type of evidence
- Identification of the type of place where the foodstuff incriminated was produced / purchased / acquired / consumed
- Contributing factors, i.e. deficiencies in food processing hygiene

COUNTRY	Causative agent	General outbreak	Family outbreak	Total number of persons			Source		Type of evidence	Location of exposure	Contributing factors
				ill	died	in hospital	Sus-pected	Con-firmed			
	1	2	3	4	5	6	7		8	9	10

Presentation and interpretation of information

Using methods of descriptive epidemiology

Summary of

- approaches taken in the individual country to collect information
- control measures taken
- national evaluation
- sources of human infection
- prevalence and incidence data; (concentration of the microorganism)
- patterns observed

Summary evaluation:

- Is there information / data available?
- What is the quality of that information?
- What are the main trends?
- What are the main patterns?

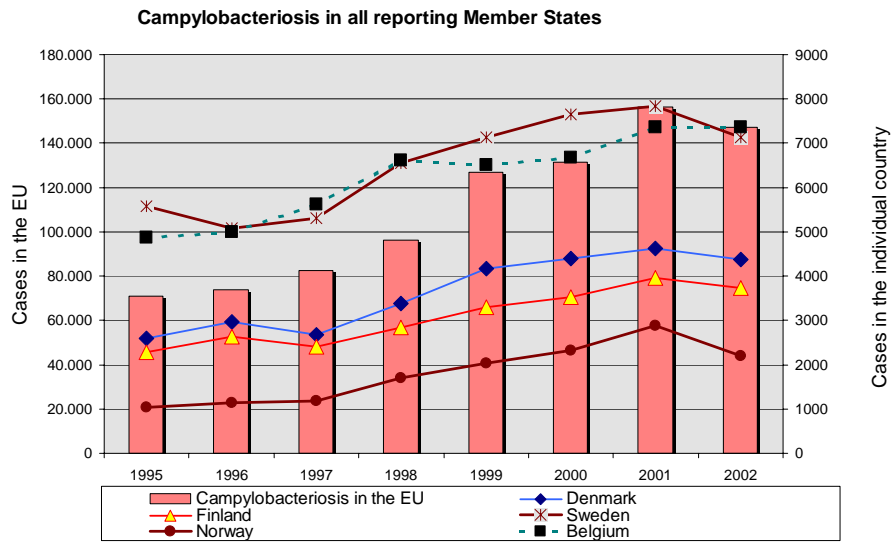
The outcome is presented in the text and supporting tables and figures

Zoonoses in humans

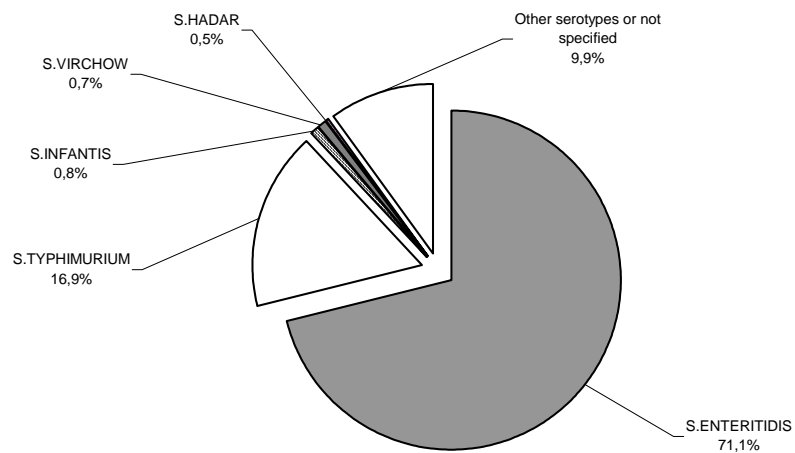
Number of reported cases

Disease	2002
Salmonellosis	145 231
Campylobacteriosis	149 287
Yersioniosis	10 147
VT E.coli	2 664
Brucellosis	2 386
Listeriosis	860
Toxoplasmosis	477
Echinococcosis	266
M.bovis infections	49
Trichinellosis	48
Rabies	1

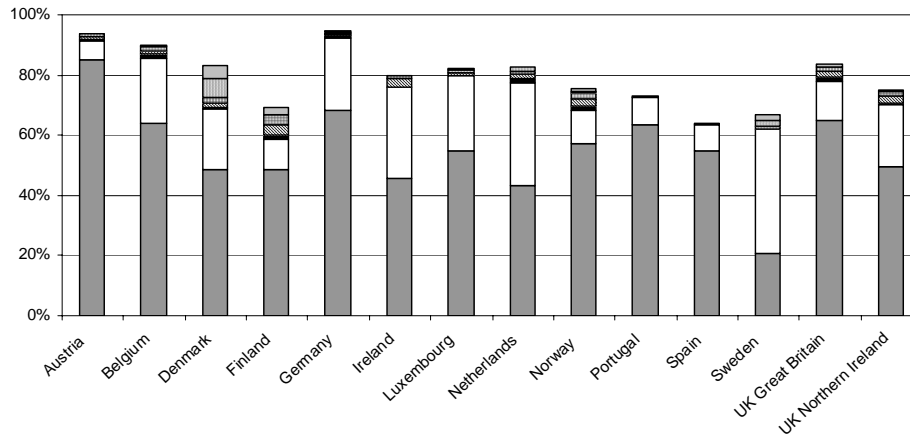
Trend in human campylobacteriosis



Top five serovars in human salmonellosis, 2002



Main serovars in human salmonellosis



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Seite 17 

Presentation of data in tables

No. Investigated - No. Positive - Share positive

	2000				2001				2002			
	Invest.	%Salm	%S.Ent.	%S.Typ	Invest.	%Salm	%S.Ent.	%S.Typ	Invest.	%Salm	%S.Ent.	%S.Typ
Denmark ²	635	0,6	0,2	0,3	594	1,0	0,5	0,3	611	0,5	0,0	0,5
Finland ³	3299	0,0	0,0	0,0	3920	0,0	0,0	0,0	4149	0,05	0,0	0,0
Ireland ¹	718	13,4	0,0	0,0	715	4,8	0,0	0,0	1348	7,8	0,0	0,0
Sweden ²	391	0,0	0,0	0,0	340	0,0	0,0	0,0	323	0,0	0,0	0,0
Norway ²	107	0,0	0,0	0,0	118	0,8	0,0	0,0	88	0,0	0,0	0,0

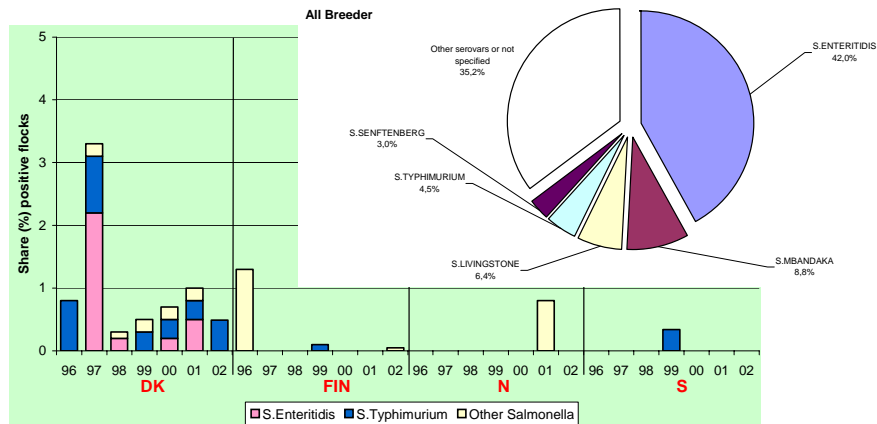
	Layer breeders (all age groups)					Laying hens producing table eggs				
	Invest.	n Salm	% Salm	% S.Ent.	% S. Typ.	Invest.	n Salm	% Salm	% S. Ent.	% S. Typ.
Denmark ¹	37	0	0,0	0,0	0,0	949	25	2,6	1,9	0,3
Finland ^{1,2,3}	483	0	0,0	0,0	0,0	2164	0	0,0	0,0	0,0
Ireland ¹	157	0	0,0	0,0	0,0	335	4	1,2	0,0	0,0
Sweden ¹	51	0	0,0	0,0	0,0	1180	4	0,3	0,0	0,1
Norway ^{1,2}	13	0	0,0	0,0	0,0	961 ⁴	0	0,0	0,0	0,0

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Seite 18 

Salmonella in breeding flocks (Gallus gallus)

- Some countries situation is very favourable, no or sporadic Salmonella findings
- In the other countries, S. Enteritidis and S. Typhimurium infection rate: 0% - 6%
- S. Enteritidis, S. Typhimurium, S. Mbandaka, S. Livingstone, S. Senftenberg



Salmonella monitoring programmes in broilers

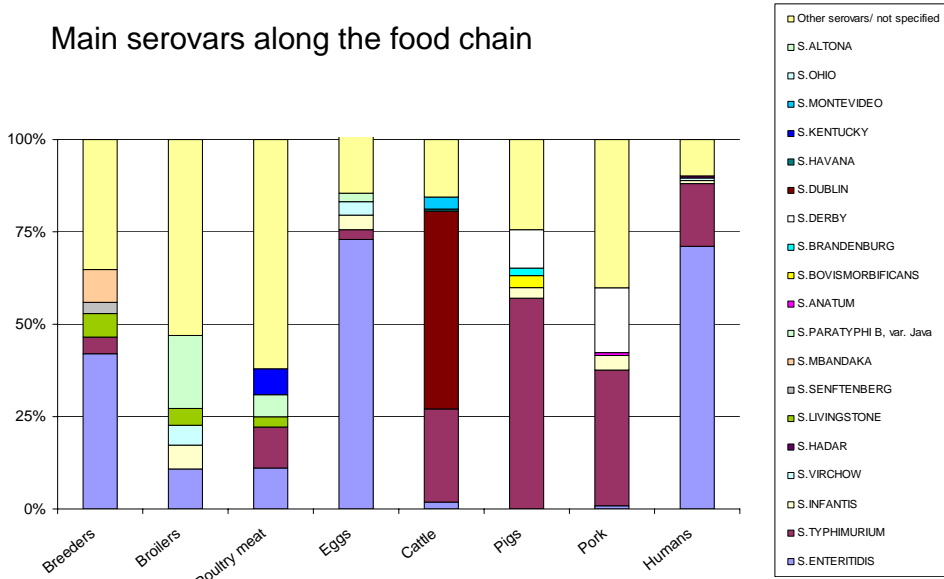
Day old chicks

Rearing period

At slaughterhouse

Type of sample	Rearing period or before slaughter (related to the flock)		At slaughter (related to the flock)
Leaflets, 40 per batch	NL	Faecal samples	Neck skin samples
		Cloacal swabs	Appendix swabs
		Caecum tissues	Carcass samples as part of enhanced monitoring programme at slaughter houses
		Dust swabs	Breast skin
			Cloacal swabs, caecum
Sample size			
40	NL	300 (5 pairs of sock samples)	DK ²
		60 (2 pairs of overshoe samples)	NL
		60	FIN, S, N
		30 (tissues)	S
		60 or sock samples	B
			A
Frequency of sampling			
At entrance	is	3 weeks before	A
		2 weeks before	B
		2 - 3 weeks before	DK
		1 - 2 weeks before	S, FIN
		1 - 3 weeks before	N
			1/cycle/house
			IRL

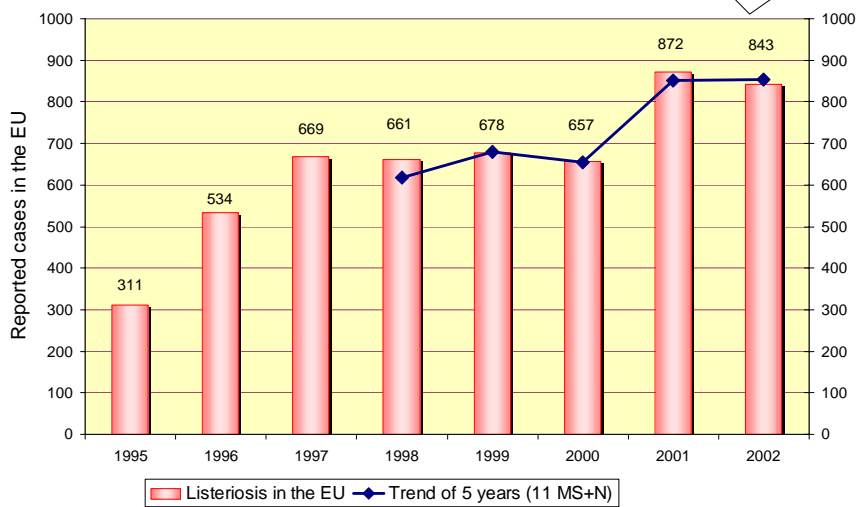
Main serovars along the food chain



Trend in human listeriosis

134 fatalities
 108 pregnancy associated cases
 2/3 serogroup 1, 1/3 serogroup 4

Listeriosis in all reporting Member States



Human infections caused by VT E.coli

	All cases	O 157	Non-O157
HUS			
- Clinical cases	275		
- Laboratory confirmed	238	91 (73%)	33 (27%)
VT infections			
- Clinical cases	1551		
- Laboratory confirmed	2426	863 (85%)	158 (15%)

Main sources:

Different types of food, recreational water, direct contact

Antimicrobial resistance in Salmonella - qualitative data (%)

	Monitoring Country	Invest.	TET	CHL	FLR	AMP	NAL	FQ	SXT
S. Typhimurium									
Animals									
-	UK	533	80	62		71	7		44
Cattle									
NO	A	1	0	0		0	0	0	
NO	B	14	48	52	39	61			17
-	DK	31	23	10		19	0		
YES	FIN	9	0	0		0	0	0	0
-	F	67	72	66		66	6	0	1

Summary - benefits

- Overview on the importance of zoonoses and zoonotic agents is available
 - Traditional zoonoses are successfully controlled in most countries
 - Salmonellosis and campylobacteriosis are the most common zoonotic diseases in the European Union
 - Listeriosis and VT E.coli infections need special attention due to severity of cases
- Prevalence data along the food chain are available --> frequency of contamination
- Incidence of human disease is summarised --> estimate burden of disease
- Knowledge about important food - microorganism combinations is available
- Knowledge on the national control strategies and the national evaluation of these activities

⇒ **Combined in one report - easily accessible**

- **Interdisciplinary collaboration is supported:**
 - **Data along the food chain in one report**
 - **Experts with different responsibilities meet regularly in one workshop**

Summary - limitations

- It is reported what is available
- The report contains that information the competent authority agrees upon to be reported
 - This should consist of validated information on national level
 - Research results may be included
 - Data from industry may be included
- The level of detail included in the report is decided on by the competent authority
- Most data are not derived from random sampling schemes -- what does it represent?
- Level of accuracy and reliability is varying
- Lack of details on the methods applied (link to validation studies; sensitivity and specificity of the method applied)
- Database is not accessible;
 - No entry tool for the reporting country
 - it is run to prepare a report, not to support risk assessors
- **NO RAW DATA**

Conclusions

The system has been developed over ten years now

The quality of data has been improved considerably

⇒ useful information is collected, mainly for
hazard identification and
exposure assessment

Nevertheless:

Without fixed rules for the

- sampling schemes and
- diagnostic methods used
- and requirements for reporting

validity and reliability of data remains limited and
not fully comparable data can be collected.

Our expectation from the new directive

- Monitoring programmes will be established to provide for comparable data at the relevant stages of the food chain
 - data for risk assessment
- The reporting system will be improved under the responsibility of the European Food Safety Authority
- Data from different sources will be combined and made available to the scientific community

Thank you for your attention

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