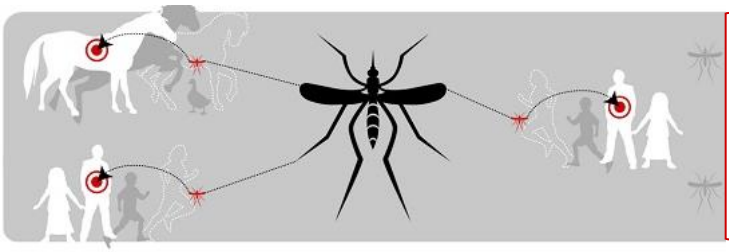


IZS TERAMO
NATIONAL REFERENCE CENTRE FOR EXOTIC DISEASES OF ANIMALS

ISTITUTO SUPERIORE DI SANITÀ

Integrated surveillance of West Nile and Usutu virus

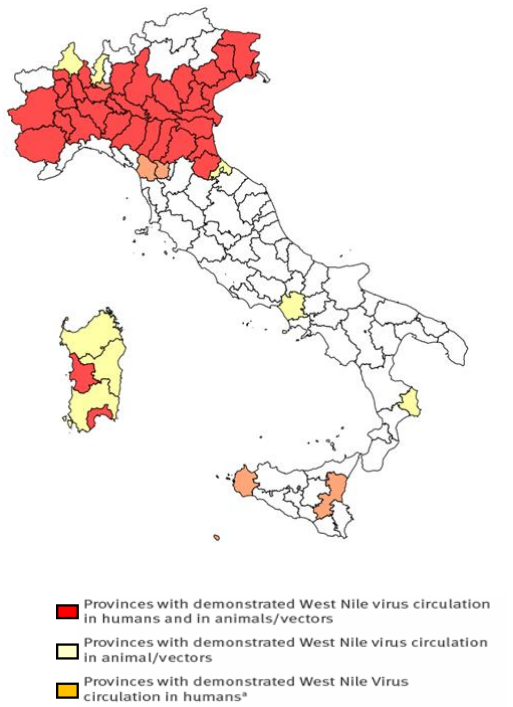
Epidemiological report no. 18 19 October 2022
National data

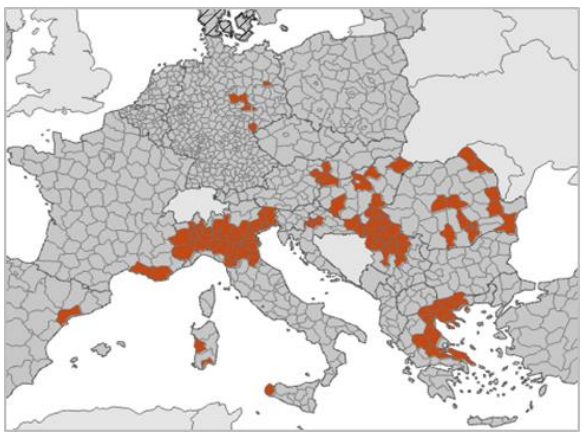
1 In Evidence

This report summarizes the results of West Nile virus and the Usutu virus surveillance activities in Italy, updated to **18-10-2022**

- Since the beginning of June 2022, **575** confirmed cases of West Nile Virus (WNV) infection in humans have been reported in Italy; of these **290** occurred in the neuro-invasive form (39 Piedmont, 26 Lombardy, 139 Veneto, 5 Friuli-Venezia Giulia, 68 Emilia-Romagna, 3 Tuscany, 3 Sicily, 7 Sardinia), **89** cases identified in blood donors (14 Piedmont, 31 Lombardy, 26 Veneto, 18 Emilia-Romagna), **187** cases of fever (4 Piedmont, 11 Lombardy, 156 Veneto, 12 Friuli-Venezia Giulia, 2 Emilia-Romagna, and 1 case imported from Spain), 10 cases symptomatic (1 Lombardy, 8 Veneto, 1 Friuli-Venezia Giulia) and 1 asymptomatic case (1 Veneto). The first human case of the season was reported by Veneto in June in the province of Padua. Among the confirmed cases, **37 deaths** were reported (6 Piedmont, 7 Lombardy, 17 Veneto, 1 Friuli-Venezia Giulia, 4 Emilia-Romagna, 1 Sicily, 1 Sardinia). In the same period**, 5 cases of Usutu virus** were reported (3 Friuli-Venezia Giulia, 1 Piedmont, asymptomatic in blood donors) (1 Emilia-Romagna with confirmed fever).
- Surveillance in mosquitoes, resident birds, wild birds, poultry and horses confirmed the circulation of WNV in **Calabria, Campania, Sicilia, Piemonte Veneto, Emilia Romagna, Lombardia, Friuli Venezia Giulia and Sardegna** region. Molecular analysis confirmed **Lineage 2** and **Lineage 1** circulation.
- As of 12 October 2022, 925 human cases of WNV have been reported in EU Member States (564 Italy, 270 Greece, 47 Romania, 14 Hungary, 9 Germany, 8 Croatia, 6 Austria, 4 Spain, 2 France, 1 Slovakia) of which 66 deaths (35 Italy, 26 Greece, 5 Romania). 202 cases were reported from neighboring countries (202 Serbia) and 8 deaths (Source: ECDC 2022)

Figure 1. *Provinces where WNV has been detected in vectors, animals and humans (blood donor, fever and neuroinvasive cases)*





Integrated WN and Usutu virus surveillance

2 Human

Since June 2022, the start of surveillance, **575** of West Nile Virus (WNV) infection have been reported in Italy, **290** WNND (Table 1) all autochthonous cases, **89** identified in blood donors and **180** cases of fever . Details of WNND are provided below.

Region/Province	Age group					Total
	<=14	15-44	45-64	65-74	>=75	
Piemonte						
Alessandria	1		1		3	**5**
Asti					3	**3**
Biella				1		**1**
Cuneo			2	1		**3**
Novara			2		9	**11**
Torino			3	1	2	**6**
Vercelli			1	1	5	**7**
Lombardia						
Bergamo			1		1	**2**
Brescia			1	2	2	**5**
Cremona				1	3	**4**
Lodi				1		**1**
Mantova					2	**2**
Milano		1	2		1	**4**
Pavia			1	1	2	**4**
Varese					2	**2**
Veneto						
Padova		3	12	19	43	**77**
Rovigo				4	8	**12**
Treviso		1	2		1	**4**
Venezia			1	5	10	**16**
Verona		1	3	2	2	**8**
Vicenza			1		7	**8**
Friuli-Venezia Giulia						
Gorizia					1	**1**
Pordenone				1	3	**4**
Emilia-Romagna						
Bologna			2	1		**3**
Ferrara			1	7	7	**15**
Forli-Cesena			1			**1**
Modena		1	3	6	2	**12**
Parma			1	4	3	**8**
Piacenza			2	4	7	**13**
Ravenna			3	2	4	**9**
Reggio Emilia		1	1	1	2	**5**
Toscana						
Lucca		1				**1**
Pistoia					2	**2**
Sicilia						
Trapani				1		**1**
Sardegna						
Cagliari					1	**1**
Oristano				2	3	**5**
Total	**1**	**9**	**47**	**68**	**141**	**266**

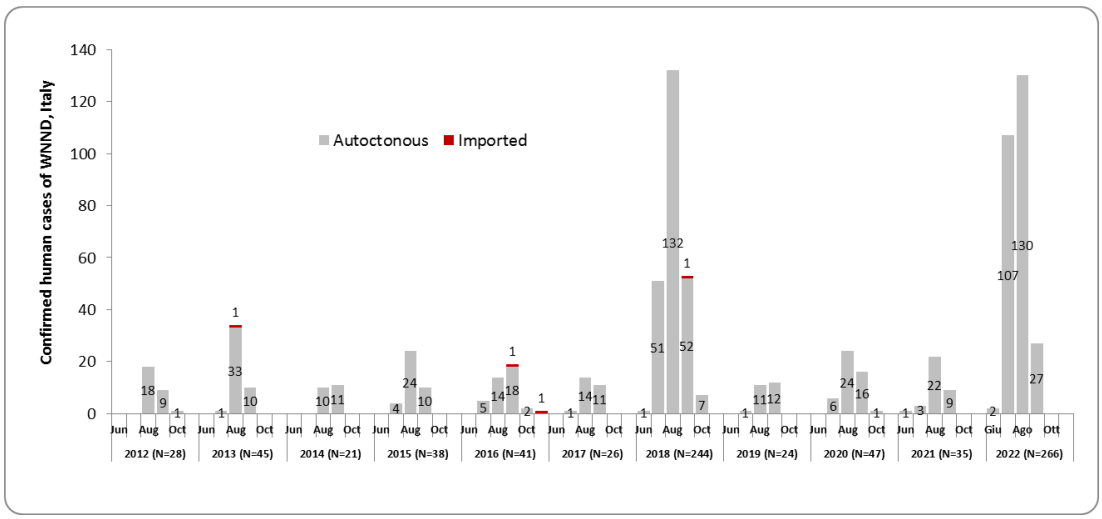


Figure 1. Trend of confirmed cases of WNND by month onset of symptoms. Italy: 2012 - 2022**.**

3 Horses

39 WNND outbreaks in horses have been confirmed by the National Reference Centre for exotic diseases (CESME) in **Piemonte, Friuli Venezia Giulia, Emilia Romagna, Lombardia, Sicilia, Campania and Veneto** region .

Region	Province	N. Outbreaks	N. Clinical outbreaks	Outbreaks details				Prevalence	Letality
				Susceptible	N.cases	Clinical cases	Death/ slaughtered		
VENETO	Padova	6	6	72	7	7	0	9,72	0
	Venezia	2	2	105	2	2	1	1,90	0
	Treviso	2	2	94	2	2	0	2,13	0
	Vicenza	2	2	25	2	2	0	0,08	0
LOMBARDIA	Cremona	1	1	38	1	1	0	0,03	0
	Mantova	2	2	2	2	2	1	1,00	1
	Varese	1	1	17	1	1	0	0,06	0
	Brescia	5	5	77	5	5	2	0,06	40
EMILIA ROMAGNA	Bologna	2	2	152	5	5	5	0,03	50
	Ferrara	1	1	39	2	2	0	0,05	0
	Piacenza	1	1	101	2	2	0	0,02	0
	Parma	1	1	46	1	1	1	0,02	100
FRIULI VENEZIA GIULIA	Pordenone	1	1	30	1	1	0	0,03	0
	Udine	2	2	38	4	4	0	0,11	0
PIEMONTE	Cuneo	2	2	144	4	4	2	0,03	0
	Torino	3	3	19	3	3	2	0,16	66,67
	Asti	1	1	41	1	1	1	0,02	100
	Biella	1	1	24	1	1	0	0,04	0
	Novara	1	1	9	1	1	0	0,11	0
SICILIA	Trapani	1	1	1	1	1	0	1,00	0
CAMPANIA	Caserta	1	1	1	1	1	1	1,00	1
Totale		39	39	1076	47	47	11	0,04	23,40

Table 2 West Nile Disease in horses- **2022**

Figure 2 Geographical distribution West Nile virus detection in horses **- 2022**

4 Resident birds of target species

CESME confirmed WNV in **128** resident birds belong to target species from **Emilia Romagna, Lombardia, Friuli Venezia Giulia, Piemonte, Sardegna and Veneto** region. The circulating strains belong to **Lineage 2** and **Lineage 1.**

The target species for the surveillance are :

- **Magpie (*Pica pica*)**
- **Carrion crow (*Corvus corone cornix*)**
- **Eurasian jay (*Garrulus glandarius)***

Figure 3 Geographical distribution West Nile virus detection in birds belong to target species - **2022**

Region	Province	Carrion Crow	Magpie	Jay	n.birds+
EMILIA ROMAGNA	Piacenza	0	3	0	3
	Bologna	2	4	2	8
	Ferrara	5	20	1	26
	Ravenna	0	8	1	9
	Parma	6	3	0	9
	Rimini	0	3	0	3
	Reggio Emilia	3	4	0	7
LOMBARDIA	Pavia	2	0	0	2
	Mantova	1	0	0	1
	Milano	1	0	0	1
VENETO	Vicenza	2	3	0	5
	Verona	6	3	0	9
	Venezia	3	0	4	7
	Padova	7	3	1	11
	Rovigo	3	3	1	7
PIEMONTE	Alessandria	1	0	0	1
	Novara	1	0	0	1
	VCO	0	0	1	1
	Cuneo	1	0	0	1
SARDEGNA	Sud Sardegna	5	0	0	5
	Sassari	2	0	0	2
	Oristano	1	0	0	1
FRIULI VENEZIA GIULIA	Udine	6	2	0	8
Total		58	59	11	128

Table 3 West Nile virus detection in birds belong to target species- **2022**

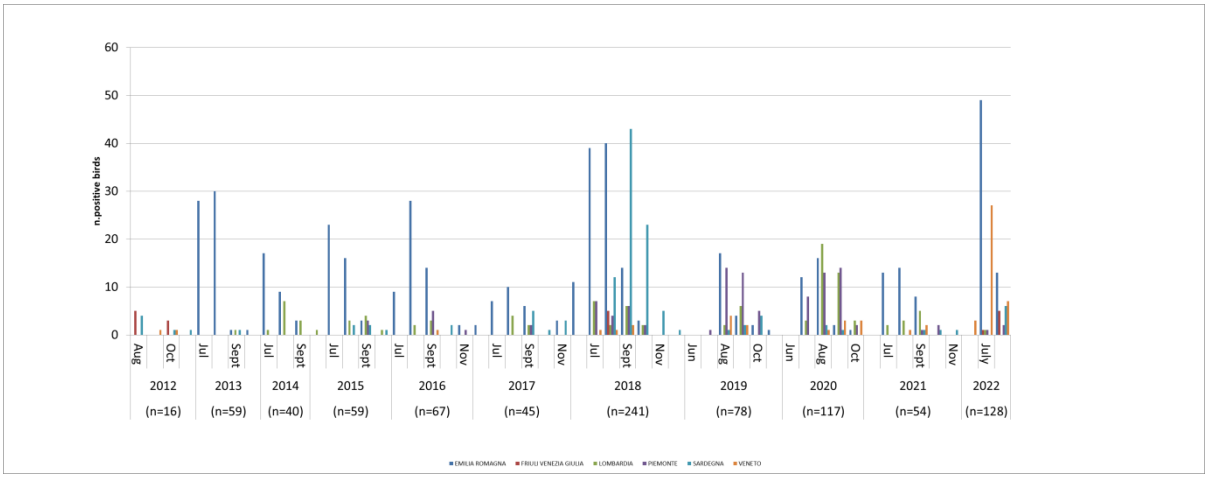


Figure 2 Spatio–temporal distribution West Nile virus detection in birds belong to target species - **2022**

5

Wild birds

CESME confirmed WNV in **170 wild birds** from **Veneto, Emilia Romagna, Lombardia and Sardegna** region. The circulating strains belong to **Lineage 1 and Lineage 2.**

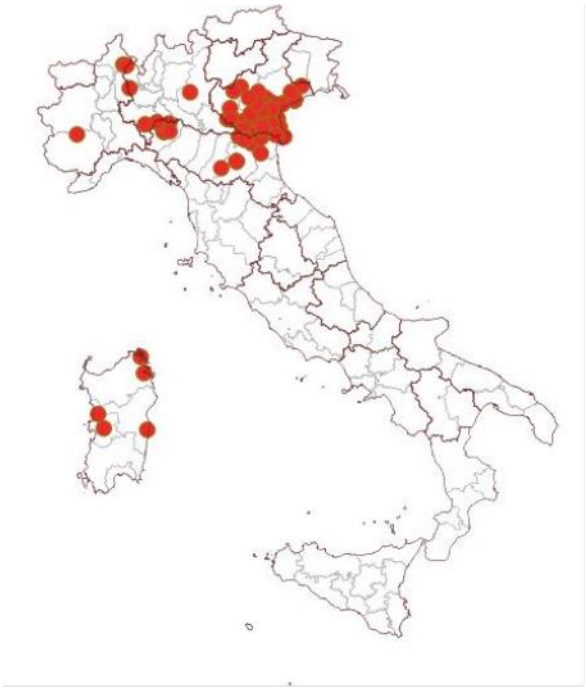


Figure 3 Geographical distribution West Nile virus detection in wild birds- **2022**

Region	Province	n.birds+
EMILIA ROMAGNA	BO	13
	FE	16
	MO	1
	PC	8
	PR	2
LOMBARDIA	BS	5
	PV	2
	VA	1
PIEMONTE	CN	2
	TO	1
	VB	2
SARDEGNA	NU	1
	OR	2
	SS	2
VENETO	PD	32
	RO	33
	VE	40
	VI	3
	VR	4
Total		170

Table 2 West Nile virus detection in wild birds - **2022**

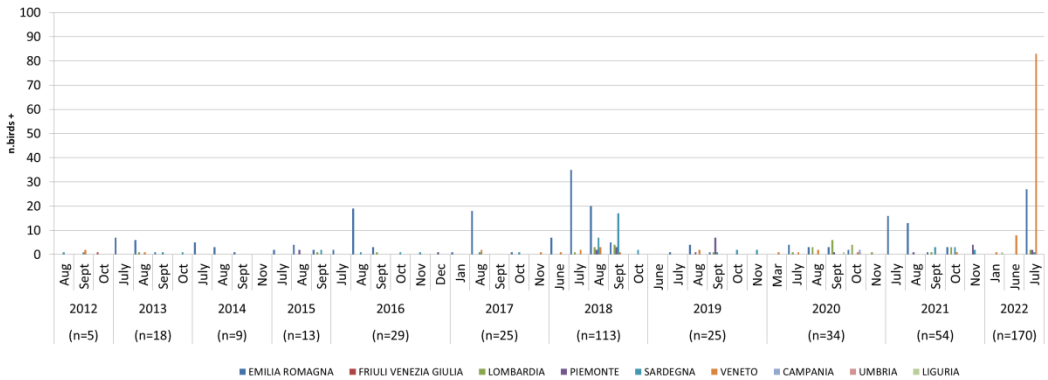


Figure 4 Spatio–temporal distribution West Nile virus detection in wild birds - **2022**

6 Entomological surveillance

WNV genome has been reported in **238 mosquitoes pool** collected in **Veneto, Emilia Romagna, Sardegna, Piemonte, Friuli Venezia Giulia and Lombardia** region**.** The circulating strains belong to **Lineage 1 and Lineage 2**.

Figure 5 Geographical distribution West Nile virus detection in mosquitoes - **2022**

Region	Province	n.pool+
EMILIA ROMAGNA	Bologna	10
	Ferrara	15
	Modena	17
	Piacenza	12
	Ravenna	5
	Forlì Cesena	1
	Parma	13
	Reggio Emilia	13
FRIULI VENEZIA GIULIA	Udine	3
	Pordenone	2
	Gorizia	1
LOMBARDIA	Brescia	3
	Lodi	1
	Milano	1
	Como	1
	Mantova	5
	Pavia	5
PIEMONTE	Cuneo	4
	Asti	1
	Alesandria	7
	Vercelli	17
	Torino	5
	Novara	4
VENETO	Padova	12
	Rovigo	30
	Venezia	27
	Vicenza	5
	Verona	8
	Treviso	7
SARDEGNA	Nuoro	1
	Oristano	2
Total		238

Table 3 West Nile virus detection in mosquitoes- **2022**

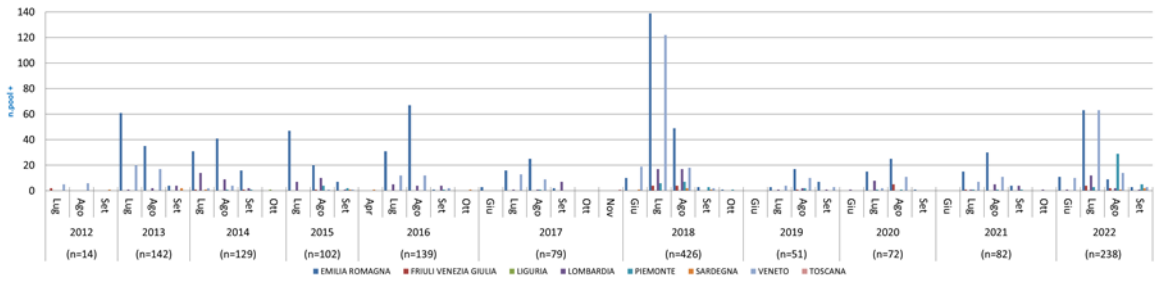


Figure 6 Spatio–temporal distribution West Nile virus detection in mosquitoes - **2022**

7

Poultry surveillance

- CESME confirmed 2 WND outbreaks in poultry flocks in **Crotone** province.



8 USUTU virus surveillance

Usutu virus has been detected in **140 mosquitoes pool** and **110 wild birds** from **Abruzzo, Piemonte, Emilia Romagna, Lombardia, Marche, Friuli Venezia Giulia, Liguria, Sardegna, Umbria, Toscana, Lazio and Veneto** region.

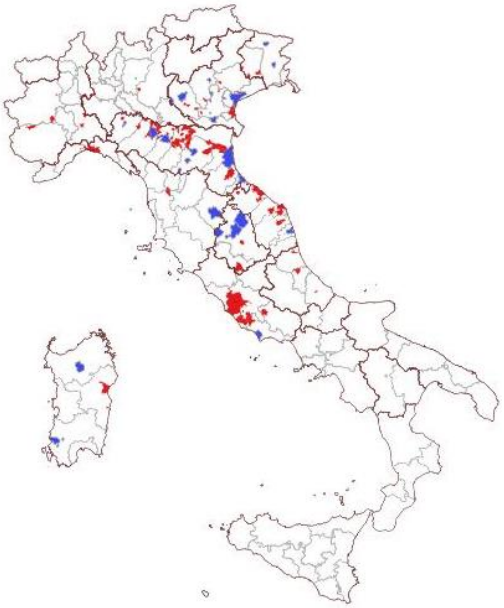


Figure 7 Geographical distribution Usutu virus detection in birds and mosquitoes - **2022**

Regione	Provincia	n.pool+
MARCHE	Pesaro e Urbino	6
	Ancona	3
	Ascoli Piceno	1
	Macerata	3
EMILIA ROMAGNA	Modena	15
	Rimini	2
	Piacenza	3
	Forlì-Cesena	1
	Ferrara	2
	Ravenna	4
	Bologna	18
	Reggio Emilia	19
	Parma	7
FRIULI VENEZIA GIULIA	Pordenone	3
LAZIO	Latina	5
	Roma	3
	Frosinone	1
LOMBARDIA	Milano	2
	Monza Brianza	1
	Brescia	2
UMBRIA	Terni	1
	Perugia	4
VENETO	Verona	4
	Venezia	2
	Treviso	2
	Padova	3
	Vicenza	2
TOSCANA	Pistoia	1
	Firenze	1
PIEMONTE	Novara	1
	Cuneo	2
	Torino	2
	Alessandria	4
SARDEGNA	Nuoro	2
ABRUZZO	Pescara	2
	Chieti	1
	Teramo	4
LIGURIA	Genova	1
Totale	140	

Table 4 Usutu virus detection in mosquitoes **-2022**

Regione	Provincia	n.uccelli+
FRIULI VENEZIA GIULIA	Udine	5
VENETO	Vicenza	2
	Padova	3
	Verona	3
	Rovigo	1
	Venezia	2
EMILIA ROMAGNA	Piacenza	2
	Bologna	29
	Reggio Emilia	1
	Parma	1
	Ravenna	2
	Rimini	36
	Forlì Cesena	8
TOSCANA	Arezzo	3
MARCHE	Fermo	2
LAZIO	Latina	1
LOMBARDIA	Lecco	1
	Bergamo	1
UMBRIA	Perugia	4
SARDEGNA	Sassari	1
	Sud Sardegna	1
PIEMONTE	Alessandria	1
Totale		110

Table 4 Usutu virus detection in birds **-2022**

9

National Plan for Prevention, Surveillance and Response to Arbovirus 2020-2025

West Nile (WNV) and Usutu (USUV) viruses surveillance activities since 2020 are included in the National Plan for Prevention, Surveillance and Response to Arbovirus 2020-2025.

The Plan integrates in a unique document the surveillance measures to be implemented at the national level for autochthonous and imported arboviruses, promoting a multidisciplinary approach in the management of surveillance and control activities.

More details about the integrated surveillance plan are available on the complete document «National Plan for Prevention, Surveillance and Response to Arbovirus 2020-2025.»

National Human surveillance activities are coordinated by the National Institute of Health (Istituto Superiore di Sanità, ISS) and the Ministry of Health is responsible to provide surveillance data to the European Commission and to ECDC. Moreover regions can implement normative-programmatic documents for the epidemiological and laboratory surveillance on their territory according to National legislation and guidelines provided by the Ministry of Health .

Veterinary surveillance activities are coordinated by the National Reference Center for the exotic diseases of animals (CESME) which harmonize the diagnostic procedures within the network of IIZZSS national laboratories and confirms suspected specimens. CESME is also in charge for the veterinary surveillance data management, collection and communication to the Ministry of Health according to the data flow reported in the Plan.

Useful links

- Web page of National Institute of Health
- Web page of Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale" (CESME)
- Directions of the National Italian Blood Center
- Directions of the National Italian Transplant Center
- Web page of the Italian Ministry of Health
- Web page of ECDC

The weekly report is prepared by:

A. Bella, G. Venturi, F. Riccardo – Department of Infectious diseases, ISS

F. Iapaolo, F. Monaco, P. Calistri – CESME, Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise.

We gratefully acknowledge the support from the personnel of the Regions and the Local Health Services for sampling and data collection, the National Italian Blood Center, the National Italian Transplant Center, the Italian network of the Istituti Zooprofilattici Sperimentali and the Italian Ministry of Health.