



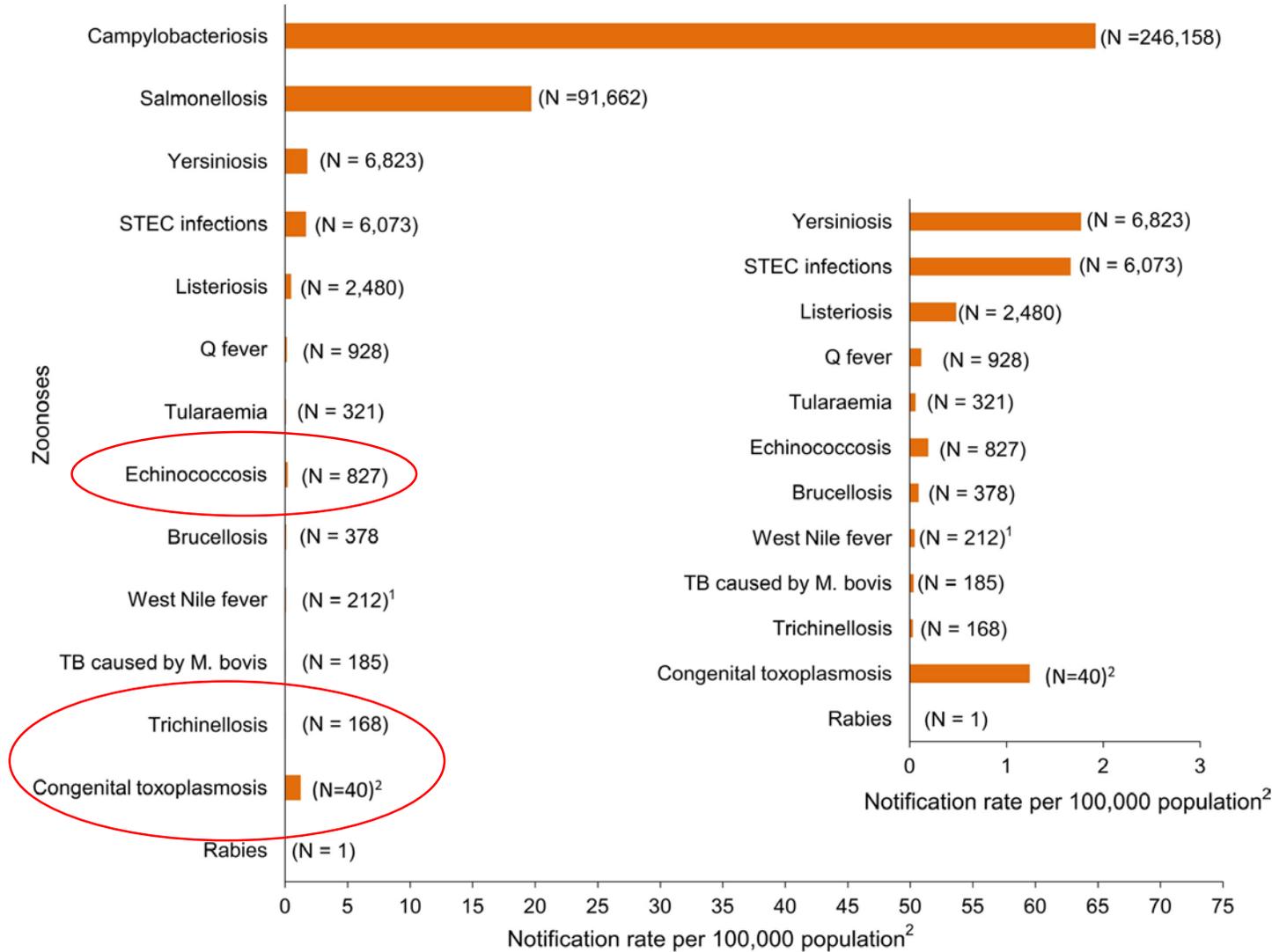
# Public health risks associated with foodborne parasites

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Trusted science for safe food

# Reported numbers and notification rates of confirmed human zoonoses in the EU, 2017



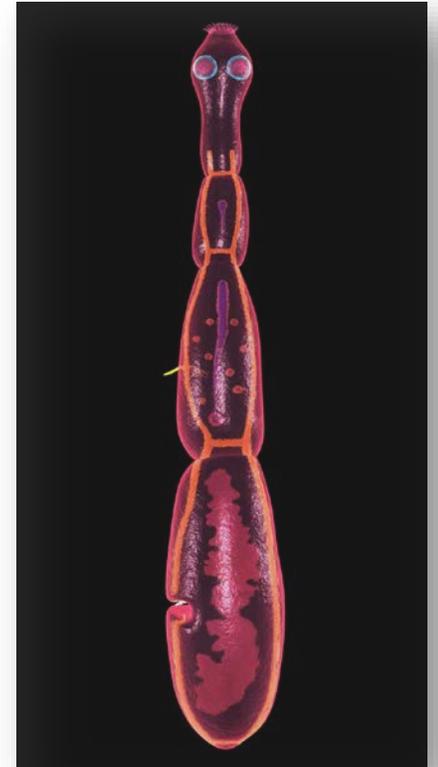
- In 2017, 40 cases of congenital toxoplasmosis were reported in the EU by 20 MS. The **EU notification rate was 1.31 cases per 100,000 live births.**
- The highest country-specific notification rates were observed in Slovenia and Poland (9.8 and 4.7 cases per 100,000 live births, respectively).
- It is not possible to make a good estimate of the prevalence of congenital toxoplasmosis in the EU, as only three MS have an active surveillance system of congenital cases.



- The highest overall prevalence of *Toxoplasma* infections in animals was detected in **small ruminants** (13.1%) and **pigs** (15%) followed by **cattle** (10.5%).
- Most samples were obtained from clinical investigations.
- It is not possible to make a good estimate of the prevalence of *Toxoplasma* infections in animals due to the use of different diagnostic methods, different sampling schemes and lack of information on the animals' age and rearing conditions.

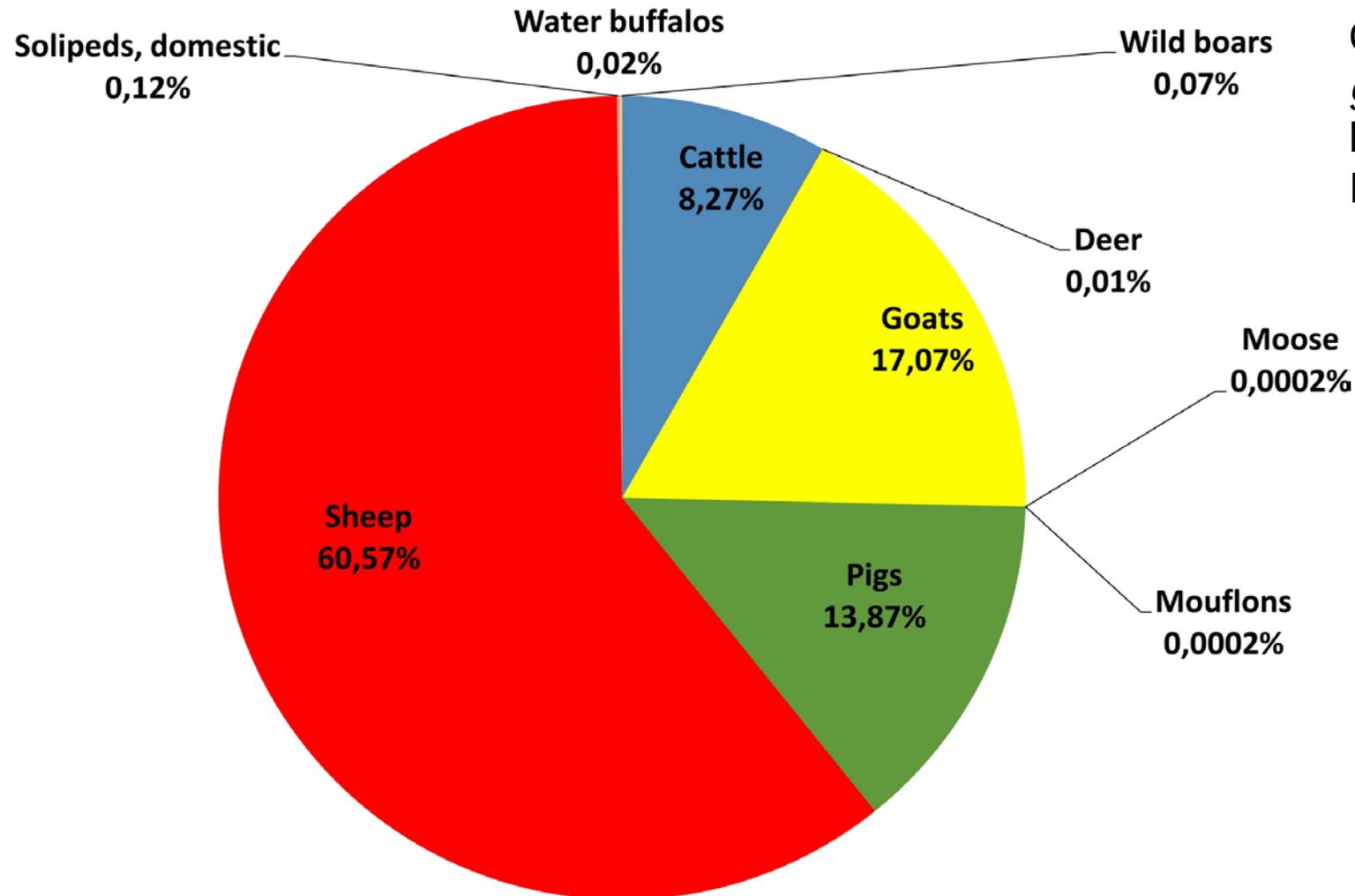


- Even if human echinococcosis is notifiable in some MS, in practice, these parasitic diseases are largely underreported in Europe.
- In 2017, 827 confirmed human echinococcosis cases were reported in the EU. The EU notification rate was 0.19 cases per 100,000 population which was a decrease by 13.6% compared with 2016
- *E. multilocularis* and *E. granulosus* accounted, respectively, for 146 cases (26.3%) and 409 cases (53.3%)

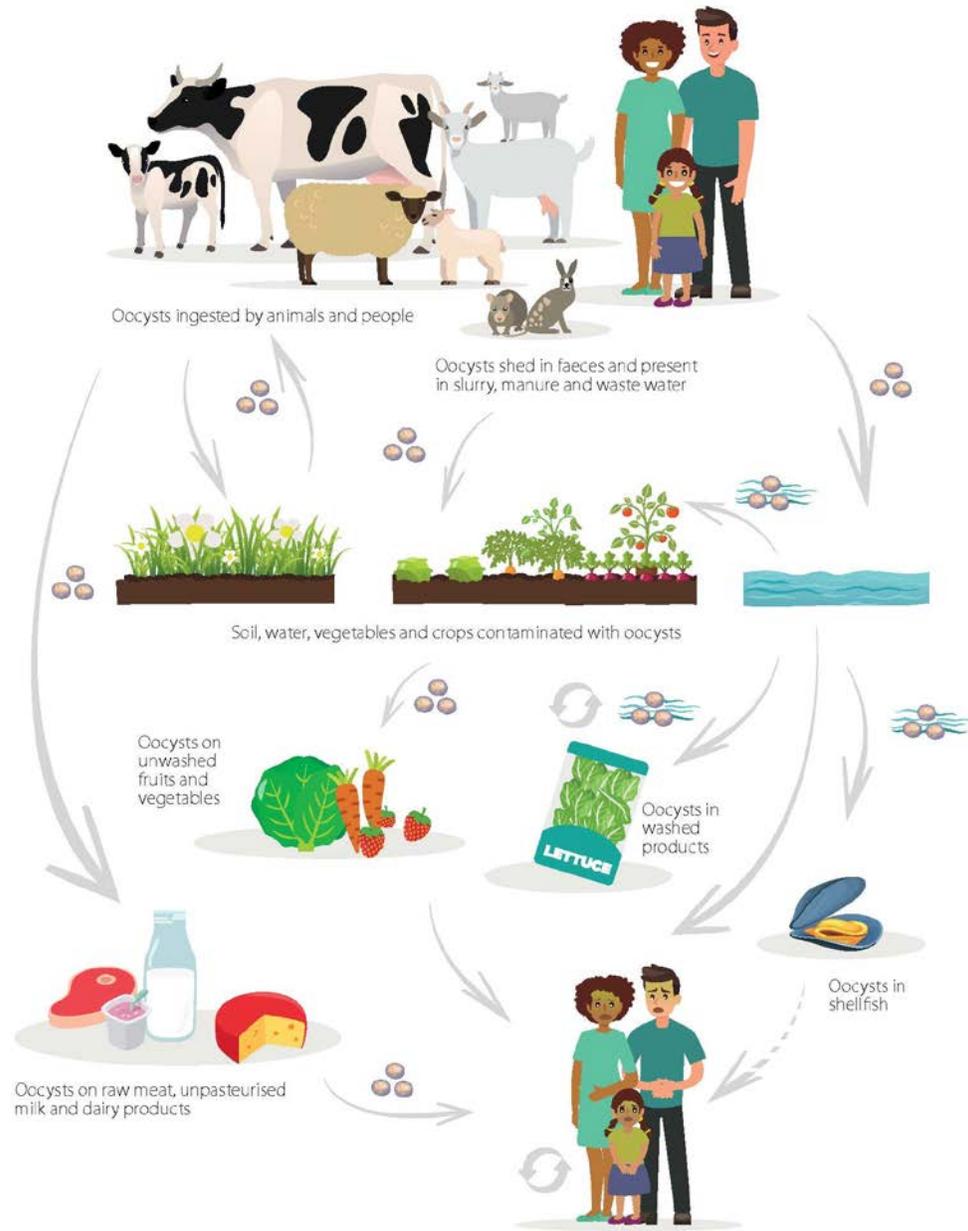


- 9 MS reported positive findings in foxes with a total prevalence of 16.6%.
- Switzerland (45.9%), France (34.7%), the Czech Republic (26.3%), Luxembourg (25.2%) and Slovakia (10.7%), reported the highest proportion of positive samples.
- In addition to foxes, *E. multilocularis* has been reported in 3 dogs, 137 pigs and 1 beaver





Overall % of *Echinococcus granulosus* s.l. positive cases, by intermediate host species, EU, 2013–2017



- Foodborne outbreaks reported to EFSA
  - 2005 to 2016, a total of 53 cryptosporidiosis outbreaks were reported, of which **7 were attributed to food**
  - Foodborne outbreaks were mainly linked to **fresh produce (n=11)**, especially more recently, followed by **unpasteurised milk and dairy products (n=7)**.

- **COST Action on foodborne parasites (2016)** listed the following foodborne parasites as being of most importance in Europe: *Echinococcus multilocularis*, *Toxoplasma gondii*, *Trichinella spiralis*, *Echinococcus granulosus*, *Cryptosporidium* spp., other *Trichinella* spp.
- **BIOHAZ opinions on meat inspection** identified *Toxoplasma gondii* as relevant public health hazard in meat; **EFSA grant on *Toxoplasma gondii* in meat** generated new data
- Suggestion to focus this BIOHAZ Panel self-task mandate on *Echinococcus* spp., *Toxoplasma gondii*, and *Cryptosporidium*

1. To critically review current **methods for the detection, identification, characterisation** and tracing of specific, selected foodborne parasites (*Echinococcus* spp., *Toxoplasma gondii*, and *Cryptosporidium* spp.), with emphasis on methods applicable to **foods** that are likely to be a potential source of infection.
2. To evaluate available information to determine the **relative importance of foodborne pathways** for transmission of the selected parasites to humans.

3. To examine available information on the **occurrence** and **survival** of the selected parasites **in food** and consumer practices contributing to infection.
4. To evaluate possible **control measures** from farm to consumption.

- The foods that are relevant for each of the parasites depend directly on their lifecycle.
- The transmission stages (oocysts for *Cryptosporidium* spp. and *T. gondii*, eggs for *Echinococcus* spp.) are shed in faeces of their hosts and may contaminate a food product.
- *T. gondii*, which is infectious to all warm-blooded animals, can be transmitted as an intrinsic part of meat.
- Focus on: fresh produce, fruit and vegetable juice, dairy products, molluscan shellfish, and all types of meat.

- Working group
  - Simone Cacciò, Rachel Chalmers, Peter Deplazes, Brecht Devleesschauwer, Elisabeth Innes, Lucy Robertson, Thomas Romig, Joke van der Giessen
- BIOHAZ Panel
  - Kostas Koutsoumanis, Ana Allende, Avelino Alvarez-Ordóñez, Declan Bolton, Sara Bover-Cid, Marianne Chemaly, Robert Davies, Alessandra De Cesare, Lieve Herman, Friederike Hilbert, Roland Lindqvist, Maarten Nauta, Luisa Peixe, Lucy Robertson, Giuseppe Ru, Marion Simmons, Panagiotis Skandamis, Elisabetta Suffredini



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## SCIENTIFIC OPINION

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### Public health risks associated with food-borne parasites

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Roland Lindqvist, Maarten Nauta, Luisa Peixe, Giuseppe Ru, Marion Simmons,  
Panagiotis Skandamis, Elisabetta Suffredini, Simone Cacciò, Rachel Chalmers, Peter Deplazes,  
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### Abstract

Parasites are important food-borne pathogens. Their complex lifecycles, varied transmission routes, and prolonged periods between infection and symptoms mean that the public health burden and relative importance of different transmission routes are often difficult to assess. Furthermore, there are challenges in detection and diagnostics, and variations in reporting. A Europe-focused ranking exercise, using multicriteria decision analysis, identified potentially food-borne parasites of importance, and that

<https://www.efsa.europa.eu/en/efsajournal/pub/5495>

- On-farm measures that reduce the likelihood of faecal contamination may be more effective than post-harvest interventions.
- In general, methods for analysing foods as vehicles of infection for these three parasites are not well established, standardised, or validated.
- Robust and reliable methods for detection of the three parasites on different foods need to be developed and validated.

