Human surveillance of parasitic diseases in the EU

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The European Centre for Disease Prevention and Control
Established in 2005 (Regulation 851/2004).

Mission to identify, assess and communicate current and emerging health threats to human health from communicable diseases through:
- EU level surveillance of communicable diseases in humans
- Epidemic intelligence
- Early Warning and Response System (EWRS)
- Technical assistance and training
- Scientific opinions and studies
- Communication to scientific community and to public

Surveillance mandate of ECDC
ECDC gathers surveillance data from EU Member States* on 52 communicable diseases and conditions using the European Surveillance System (TESSy) and standard EU case definitions.

Selected to reflect present needs and should add value to have surveillance at Community level

*Decisions 2012/506/EU and 2012/506/EU

Example EU case definition - Cryptosporidiosis (Cryptosporidium spp.)

Clinical Criteria
Any person with at least one of the following two:
- Diarrhoea
- Abdominal pain

Laboratory Criteria
At least one of the following four:
- Demonstration of Cryptosporidium oocysts in stool
- Demonstration of Cryptosporidium in intestinal fluid or small-bowel biopsy specimens
- Detection of Cryptosporidium nucleic acid in stool
- Detection of Cryptosporidium antigen in stool

Source: Decision 2012/506/EU
Example case definition
- Cryptosporidiosis (cont.)

Epidemiological Criteria
One of the following five epidemiological links:
— Human to human transmission
— Exposure to a common source
— Animal to human transmission
— Exposure to contaminated food/drinking water
— Environmental exposure

Case Classification
A. Possible case
B. Probable case
C. Confirmed case

Source: Decision 2012/506/EU

The surveillance pyramid

Surveillance of parasitic infections in humans is mainly based on reporting of laboratory-confirmed infections.

Examples of variables collected
- General for all diseases
  - Age, gender, date of onset, case classification, place of notification, imported, outcome of case
- For all food- and waterborne diseases
  - Hospitalisation, transmission, suspected vehicle
- Specific for parasitic diseases
  - Species (trichinellosis and echinococcosis)
  - Age in months (congenital toxoplasmosis)

Scope of European FWD programme

Bacterial diseases (13)
- Anthrax
- Botulism
- Brucellosis
- Cholera
- Leptospirosis
- Typhoid/paratyphoid fever
- Campylobacteriosis
- Listeriosis
- Salmonellosis
- Shigellosis
- STEC/VTEC infection
- Typhus

Parasitic diseases (5)
- Cryptosporidiosis
- Echinococcosis
- Giardiasis
- Toxoplasmosis (congenital)
- Trichinellosis

Viral Diseases (2)
- Hepatitis A
- Norovirus infection

Prion Diseases
- Variant Creutzfeldt-Jakob disease

Source: TESSy
### Risk factors alveolar echinococcosis

- German case-control study (Kern et al, 2004)
  - 65% of cases attributed to farming
  - Also more likely to have owned dogs, and particularly leaving the dog in the garden unattended or having dogs that killed game
- French study (Piarroux et al, 2013)
  - people living in a rural setting in AE-endemic areas at highest risk
  - Second highest in persons gardening in a non-rural setting in AE-endemic areas

### Congenital toxoplasmosis surveillance

- Since 2008, EU case definition focus on congenital toxoplasmosis
- Infection in early pregnancy can result in stillbirth or congenital brain lesions (or lesions in other organs)
- Only 6 Member States have active surveillance of congenital toxoplasmosis (Austria, Belgium, France, some regions in Italy, Lithuania and Slovenia) (ECCMID, 2013)
- Usefulness of surveillance debated
  - the disease is often asymptomatic
  - the effect of prenatal treatment for congenital toxoplasmosis is uncertain

### Congenital toxoplasmosis in EU/EEA, 2012

<table>
<thead>
<tr>
<th>Country</th>
<th>2012 National Data Report Type</th>
<th>Total Cases</th>
<th>Confirmed Cases &amp; Rates</th>
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**ECDC Burden of Communicable Diseases in Europe project (BCoDE)**

- Ongoing for several years
- Common metric – Disability Adjusted Life Years

**DALY = years of life lost (YLL) + years lived with disability (YLD)**

- Consortium performed extensive literature review to produce outcome trees and software to estimate burden
- 32 diseases under EU surveillance compared, 2007-2011 data
Ranking of food- and waterborne diseases

Burden of food- and waterborne diseases

Other projects related to parasites

- Training course together with WHO Global Foodborne Network (GFN), March 2014 on “Diagnostics and public health surveillance, prevention and control of foodborne parasites”
- Inventory of national surveillance system for food- and waterborne parasitic diseases in the EU/EEA, 2014-2015
- Surveillance dashboard under development. Planned that all diseases included by end of 2015
Project Overview

Inventory of national surveillance system for food- and waterborne parasitic diseases in the EU/ EEA

Project rationale

Food- and waterborne parasitic diseases (FWPD) surveillance at EU level is particularly variable, subject to both apparent gross under-ascertainment and non-reporting. This results in limited utility of EU level surveillance in this area, for both EU and MSs level communicable disease prevention and environmental health policy, and other purposes.

The reasons for these limitations are not known, consistently across all MSs.

Project outline

Aim:
- Understanding the existing challenges to FWPD surveillance data at national and EU level and identify possible areas for improvement

Objectives:
- Understanding the surveillance system infrastructure and performance at the national level across all MSs
- Identify barriers and limitations to ascertainment and reporting at the national level
- Identify barriers to reporting at the EU level
- Provide a national situation analysis on country perceived priorities for surveillance and prevention of FWPD

Study design
The study will be conducted using two data collection approaches:
- a questionnaire circulated to all MSs
- data available from The European Surveillance System (TESSy)

Project timeframe

* The ECDC Expert Panel on FWPD consist of seven invited experts from public health and food safety/veterinary sector in MSs, one representative from the European Reference Laboratory (EURL) for Parasites and one World Health Organization (WHO) representative. The EP will also include ECDC staff responsible for the implementation of the project as well as EUPHEM/EPIET fellows working on the project.
News from Epidemic Intelligence screening:

Cluster of *Schistosoma haematobium* - Corsica, France - 2014

- A cluster of 3 cases of *Schistosoma haematobium* infection in a French family identified in April 2014 (father and two children), with possible exposure from a river in southern Corsica.
- 8 additional cases detected in three more families (two French and one German) who spent their vacation in the same area.
- None of the cases had been travelling to endemic areas within the incubation period.
- Epidemiological and environmental investigations are ongoing. *Bulinus* aquatic snails intermediate host.
- *S. haematobium* causes urinary tract infections.

Source: ECDC CDRT (Communicable Disease Threats Report) week 20, 11-17 May 2014.

Thank you for your attention!

Contact: fwd@ecdc.europa.eu
ECDC website: www.ecdc.europa.eu