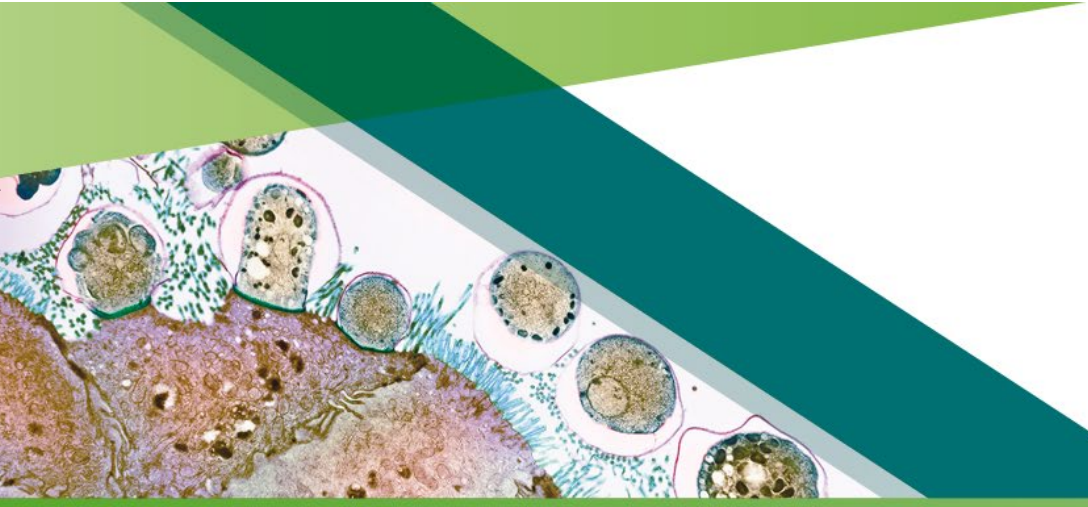

SURVEILLANCE REPORT

Cryptosporidiosis

Annual Epidemiological Report for 2020

Key facts

- For 2020, 24 European Union/European Economic Area (EU/EEA) countries reported 4 164 confirmed cryptosporidiosis cases.
- The notification rate was 1.7 confirmed cases per 100 000 population – the lowest in the past five years.
- The lower number of cases reported in 2020 is attributable to the COVID-19 pandemic and the absence of data from the United Kingdom, which stopped reporting data in 2020 due to its withdrawal from the EU.
- Five countries accounted for 65% of all confirmed cases, and Germany alone accounted for 28%.
- The number of cases peaked in August, in line with the seasonal pattern observed previously.
- Children aged 0–4 years had the highest notification rate (5.4 cases per 100 000 population), although it was about one-third of the rate observed during the previous five years.

Introduction

Cryptosporidiosis is an acute diarrhoeal disease caused by an intracellular protozoan parasite *Cryptosporidium*. It infects a variety of animals (e.g. humans, cattle, sheep, rodents, cats and dogs), but also birds, fish and reptiles. Most human cases are due to two species: *Cryptosporidium hominis*, which mainly infects humans, and the zoonotic species *Cryptosporidium parvum*, which also infects domestic animals, in particular young calves and lambs. The infection can be asymptomatic or can cause diarrhoea that spontaneously resolves over a couple of weeks. It may be life-threatening for people with impaired immune systems, who may develop profuse, life-threatening, watery diarrhoea that is very difficult to treat with currently available drugs. Transmission is faecal-oral by ingestion of infectious oocysts, direct contact with infected people or animals, or ingestion of contaminated water or food. *Cryptosporidium* oocysts can survive for months in moist soil or water and survive harsh environmental conditions (e.g. heat, cold) for extended periods of time.

Methods

This report is based on data for 2020 retrieved from The European Surveillance System (TESSy) on 5 November 2021. TESSy is a system for the collection, analysis and dissemination of data on communicable diseases.

For a detailed description of the methods used to produce this report, please refer to the Methods chapter of the 'ECDC Annual Epidemiological Report' [1]. An overview of the national surveillance systems is available online [2]. A subset of the data used for this report is available through ECDC's online 'Surveillance Atlas of Infectious Diseases' [3].

Suggested citation: European Centre for Disease Prevention and Control. Cryptosporidiosis. In: ECDC. Annual epidemiological report for 2020. Stockholm: ECDC; 2024.

Stockholm, December 2024

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The notification of cryptosporidiosis is mandatory in 20 European Union (EU) Member States, as well as in Iceland and Norway. In two Member States (Belgium, Greece), notification is voluntary. No surveillance systems exist in Austria, Denmark, France, the Netherlands or Italy. The surveillance systems for cryptosporidiosis have full national coverage, except in Spain.

For 2020, the Netherlands did not reported data and Spain did not received data from all regions that usually report, resulting in case numbers being lower than expected. Therefore, notification rates were not calculated for these two countries. Data for Greece is only provided from 2018, as that is the year it established a surveillance system for cryptosporidiosis based on voluntary reporting of laboratory-confirmed cases collected from public hospitals. In Luxembourg, the notification system changed in 2020 to include all electronic laboratory reports rather than only reports from general practitioners; this change resulted in a major increase in cases.

All reporting countries report case-based data except Belgium, Bulgaria and Greece, which report aggregated data. Both reporting formats were included to calculate the numbers of cases, notification rates, disease trends and age and gender distributions.

Epidemiology

For 2020, confirmed cryptosporidiosis data were reported by 24 EU/EEA countries, of which four did not report any cases. Twenty of these reporting countries reported 4 164 confirmed cases (Table 1). Germany reported most of the confirmed cases (1 175 cases; 28%). Sweden (641), Finland (571), Ireland (511), Belgium (500) and Norway (481) together accounted for 65% of all confirmed cases. The notification rate in 2020 was 1.7 cases per 100 000 population, a decrease of 51.4% compared with the notification rate in 2019 (3.5 cases per 100 000 population). Country-specific notification rates ranged from <1.0 to 10.5 per 100 000 population: 13 countries reported <1.0 case per 100 000 population, 7 countries reported 1 to 10 cases per 100 000 population and 3 countries reported >10 cases per 100 000 population. For one country (Spain) the rate was not calculated.

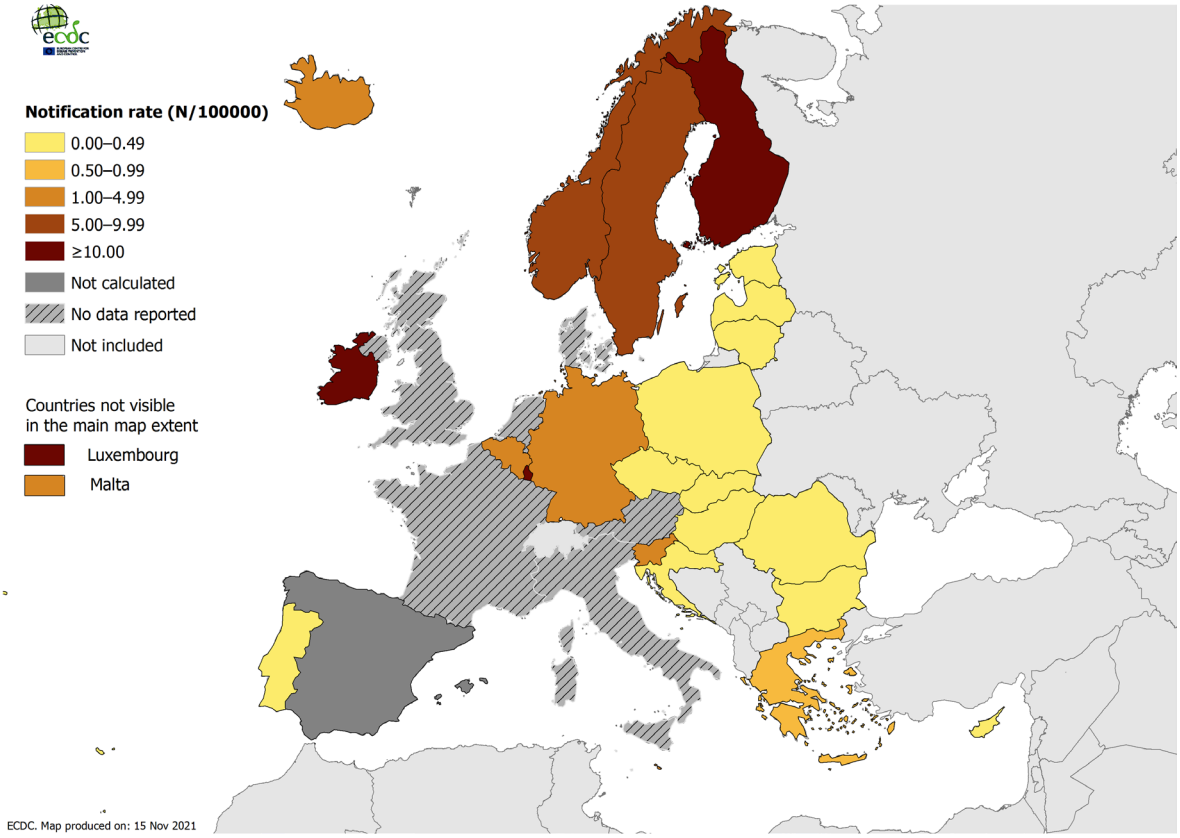
Despite an overall lower number of cases reported in 2020, increased rates were reported by Finland, Iceland, Luxembourg, Norway and Malta compared with 2019 (Table 1). As a result of the changes in reporting described in the Methods section, Luxembourg reported 10.5 cases per 100 000 population in 2020, with a total of 66 cases; no cases were reported in the preceding four years.

Table 1. Confirmed cryptosporidiosis cases and rates per 100 000 population by country and year, EU/EEA, 2016–2020

Country	2016		2017		2018		2019		2020		
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	ASR
Austria	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NRC
Belgium	1 247	11.0	716	6.3	1 255	11.0	856	7.5	500	4.3	4.5
Bulgaria	4	0.1	6	0.1	0	0.0	1	0.0	2	0.0	0.0
Croatia	4	0.1	17	0.4	7	0.2	2	0.0	2	0.0	0.1
Cyprus	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Czechia	2	0.0	5	0.0	6	0.1	13	0.1	3	0.0	0.0
Denmark	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NRC
Estonia	1	0.1	0	0.0	3	0.2	0	0.0	5	0.4	0.4
Finland	71	1.3	250	4.5	348	6.3	485	8.8	571	10.3	11.1
France	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NRC
Germany	1 839	2.2	1 695	2.1	1 774	2.1	1 961	2.4	1 175	1.4	1.5
Greece	NDR	NRC	NDR	NRC	26	0.2	110	1.0	91	0.8	NRC
Hungary	16	0.2	7	0.1	11	0.1	10	0.1	4	0.0	0.0
Iceland	8	2.4	11	3.3	18	5.2	9	2.5	12	3.3	3.4
Ireland	558	11.8	572	12.0	619	12.8	601	12.3	511	10.3	9.1
Italy	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NRC
Latvia	3	0.2	4	0.2	2	0.1	3	0.2	2	0.1	0.1
Liechtenstein	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NRC
Lithuania	0	0.0	1	0.0	0	0.0	2	0.1	0	0.0	0.0
Luxembourg	0	0.0	0	0.0	0	0.0	0	0.0	66	10.5	10.6
Malta	1	0.2	0	0.0	0	0.0	5	1.0	10	1.9	1.8
Netherlands	2 124	24.1	1 347	15.2	1 787	20.0	NDR	NRC	NDR	NRC	NRC
Norway	255	4.9	379	7.2	327	6.2	378	7.1	481	9.0	9.1
Poland	6	0.0	7	0.0	3	0.0	1	0.0	2	0.0	0.0
Portugal	5	0.0	6	0.1	4	0.0	7	0.1	1	0.0	0.0
Romania	0	0.0	5	0.0	0	0.0	5	0.0	0	0.0	0.0
Slovakia	1	0.0	2	0.0	1	0.0	1	0.0	0	0.0	0.0
Slovenia	13	0.6	20	1.0	16	0.8	26	1.2	21	1.0	1.1
Spain	238	NRC	554	NRC	1 511	NRC	261	NRC	64	NRC	NRC
Sweden	594	6.0	779	7.8	715	7.1	1 088	10.6	641	6.2	6.4
United Kingdom	6 708	10.3	5 051	7.7	5 820	8.8	5 303	8.0	NDR	NRC	NRC
EU/EEA	**13 698**	**4.9**	**11 434**	**3.8**	**14 253**	**4.4**	**11 128**	**3.5**	**4 164**	**1.7**	**1.7**

Source: Country reports.
ASR: age-standardised rate; EU/EEA: European Union/European Economic Area; NDR: no data reported; NRC: no rate calculated.

Figure 1. Confirmed cryptosporidiosis cases per 100 000 population by country, EU/EEA, 2020

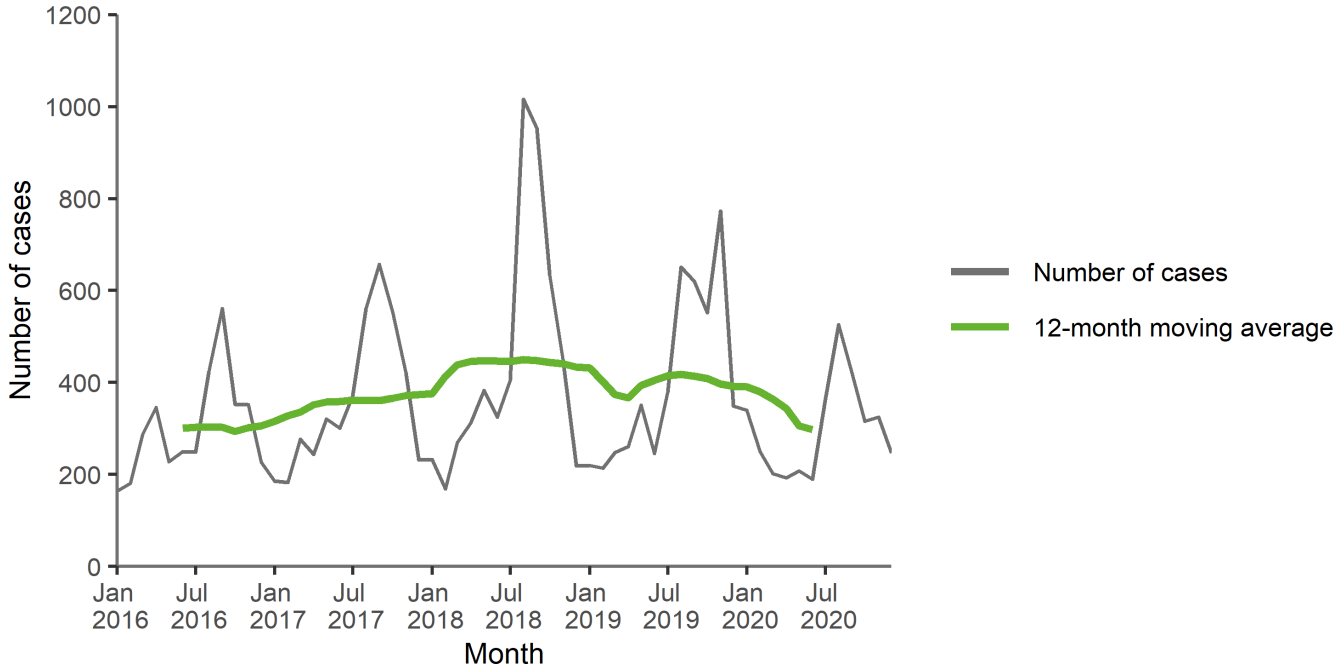


Source: Country reports

Seasonality

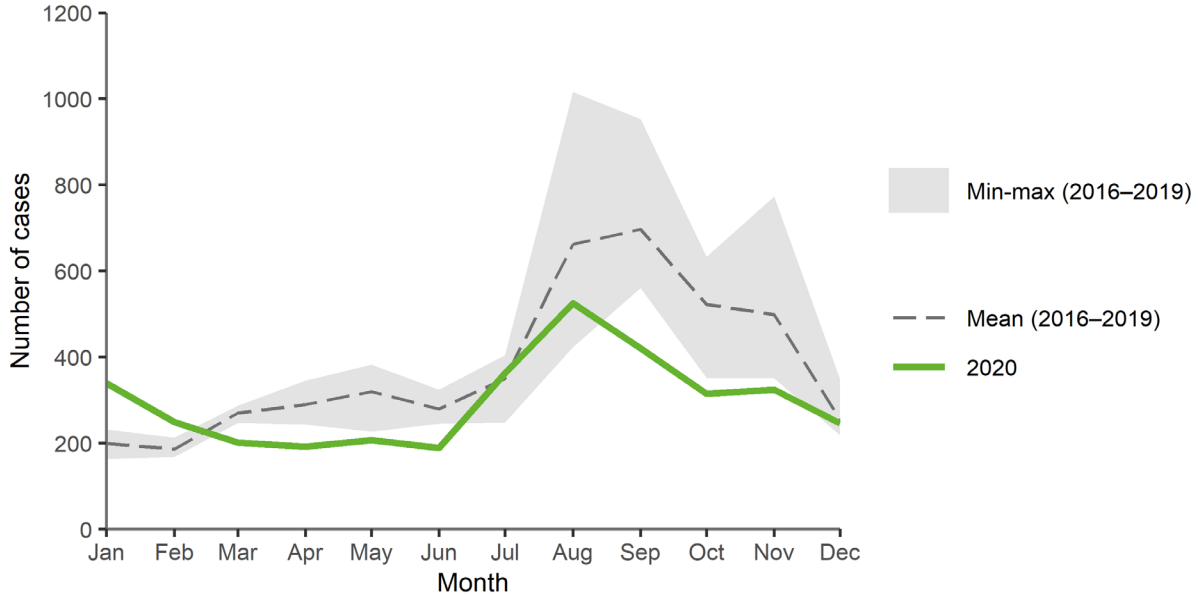
In 2020, the number of reported cryptosporidiosis cases was highest in August, maintaining a similar seasonal pattern as previous years, when cases increased in late summer or early autumn (Figures 2 and 3).

Figure 2. Distribution of confirmed cryptosporidiosis cases by month, EU/EEA, 2016–2020



Source: Country reports from Cyprus, Czechia, Estonia, Finland, Germany, Hungary, Iceland, Ireland, Latvia, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

Figure 3. Distribution of confirmed cryptosporidiosis cases by month, EU/EEA, 2020 and 2016–2019



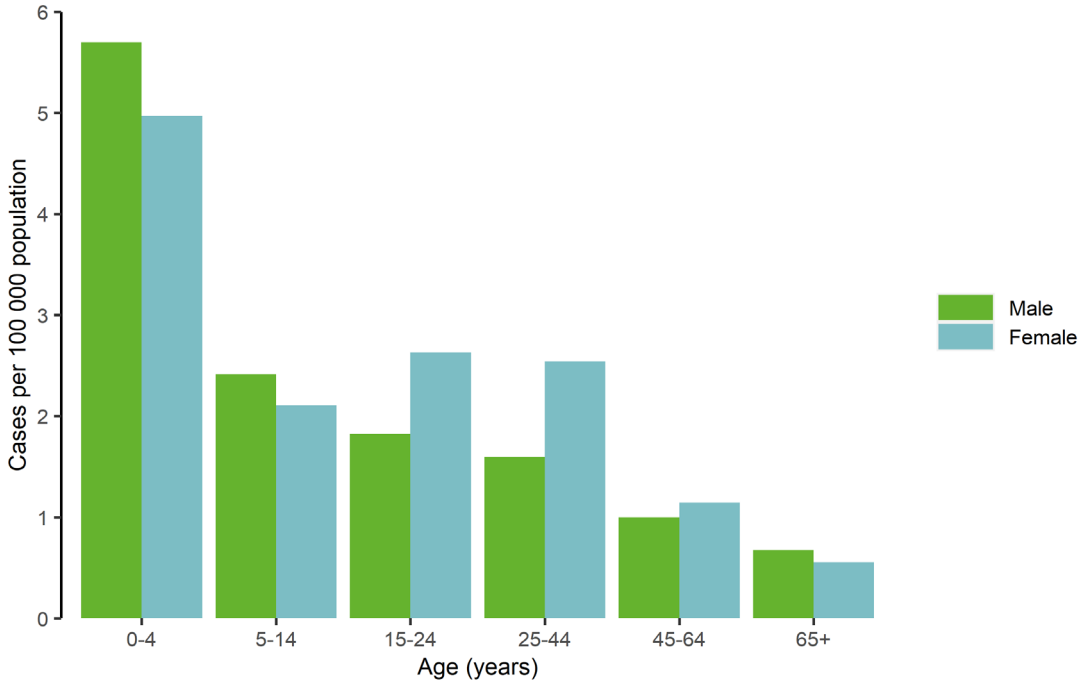
Source: Country reports from Cyprus, Czechia, Estonia, Finland, Germany, Hungary, Iceland, Ireland, Latvia, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

Age and gender

Age and gender data were available for 98% of all reported cryptosporidiosis cases. As in previous years, the highest notification rate was observed in the age group 0–4 years (5.4 cases per 100 000 population), with 5.7 confirmed cases per 100 000 population in males and 5.0 confirmed cases per 100 000 population in females (Figure 4). The highest notification rate – though lower than in 2019 – in this age group was reported by Ireland (65.2 cases per 100 000 population), followed by Belgium (20.2 cases per 100 000 population).

The overall male-to-female ratio was 0.9:1 and varied by age group. As in previous years, there were more boys among children 0–4 years old (male-to-female ratio 1.1:1) and more women in the age groups 15–24 years and 25–44 years (male-to-female ratio of 0.7:1 and 0.6:1, respectively). Overall, most of the cases in women in EU/EEA countries (792 cases) were reported in the age group 25–44 years.

Figure 4. Distribution of confirmed cryptosporidiosis cases per 100 000 population, by age and gender, EU/EEA, 2020



Outbreaks and other threats

In 2020, there were no notifications about outbreaks of cryptosporidiosis reported in the Epidemic Intelligence Information System for Food and Waterborne Diseases (EPIS-FWD).

Discussion

In 2020, the EU/EEA notification rate and number of cryptosporidiosis cases were noticeably reduced compared with previous years. However, the number of countries reporting <1 case per 100 000 population (13 countries) remained similar to previous years.

Prior to the COVID-19 pandemic (2016–2019), overall notification rates for the EU/EEA ranged from 3.5 to 4.9 cases per 100 000 population. This decreased considerably in 2020, to 1.7 cases per 100 000 population. This drop in reported cases is mainly due to the absence of UK data, as the UK stopped reporting data in 2020 as a result of its withdrawal from the EU on 1 February 2020. Prior to this, the UK reported over 40% of all cases in the EU/EEA.

In addition, a combination of factors relating to the COVID-19 pandemic likely had an impact on the number of reported cases. For example, redistribution of resources may have affected both surveillance and diagnostics, and a real reduction in cases may have occurred due to stricter hygiene measures (e.g. increased handwashing), as well as less travel and less restaurant and farm visits, among other things.

Identification and typing of *Cryptosporidium* plays a key role in finding the source of an outbreak – for example, in food (e.g. milk, juice, vegetables, fruits) or drinking water [4–7]. However, this can be difficult; as the infection has a relatively long incubation period, there is often no food or drink items left to be analysed by the time an outbreak is identified.

In Europe, the infection is mainly acquired through recreational waters (e.g. in swimming pools, public paddling pools, water parks or open water, as well as at mass sporting events involving water or mud) and contact with farm animals [8–10].

Public health implications

Despite a relatively low EU/EEA notification rate, it is important to monitor and control cryptosporidiosis in the region and to better understand the epidemiology in terms of species, subtype distribution and trends. This requires increased laboratory testing for parasites, species identification and subtyping, as well as more complete reporting. As outbreak control is dependent on understanding the dynamics of infection, this information is often crucial for outbreak investigations and source tracing. Cryptosporidiosis is considered underdiagnosed and, thus far, no effective treatments or vaccines have been developed.

The public should also be made aware of how to minimise the risk of getting cryptosporidiosis, including practicing proper hand hygiene and proper handling of raw or minimally processed fruits and vegetables, such as washing, peeling and cooking, if necessary. Public health authorities should raise awareness of these prevention strategies, especially among families with small children who may visit petting zoos or farms, as well as people in close contact with farm animals (e.g. farm workers and veterinary specialists). Awareness should also be raised about the possibility of getting cryptosporidiosis from swallowing contaminated water in swimming pools or other recreational water sites, or while participating in mass sporting events involving water or mud.

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