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Surveillance of cryptosporidiosis in Spain from 1995 to 2003

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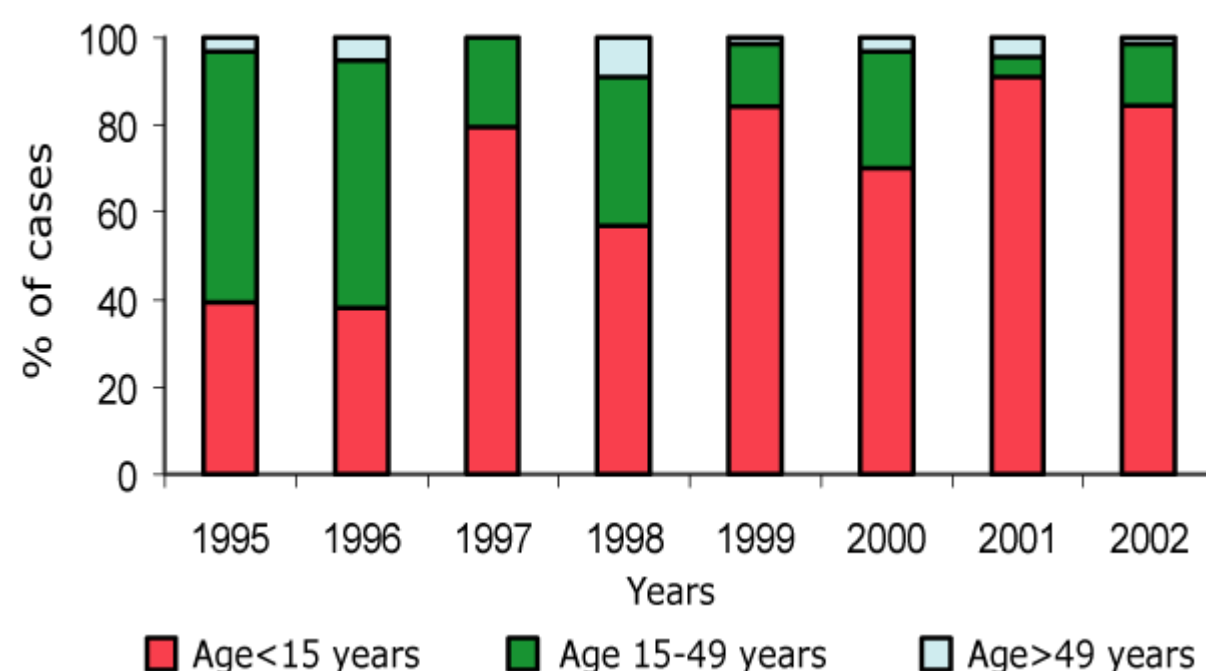
There are two sources of information for the surveillance of *Cryptosporidium* in Spain: the Outbreak System (Sistema de Brotes) and the Microbiological Information System (Sistema de Información Microbiológica, MIS). The former analyses the results of the investigations of outbreaks and clusters, including those which occur among international tourists. Notification of outbreaks is mandatory and standardised; a uniform outbreak reporting electronic format (variables and codification) has been developed according to World Health Organization recommendations. All outbreaks must be immediately reported to regional health authorities, which carry out investigations and implement necessary control measures. Some regions have set up early warning systems in order to assist physicians with reporting and investigating outbreaks. At national level, only outbreaks considered of national significance need to be reported immediately. A national early warning system is currently under development.

The MIS is based on the voluntary weekly reports of microbiological diagnoses of individual cases carried out by laboratories (mainly hospital). Data obtained from these individual case reports includes the agent, date of diagnosis, place, age, sex, etc. This system covers approximately 25% of the Spanish population, since only five of 19 Spanish regions currently report cases to this system.

A total of 823 cases of cryptosporidiosis were reported in this way from 1995 to 2002 (annual average of 103 cases). No increase in the number of cases reported was detected during this period. Patients aged 1-4 years represented 28% of reported cases, those aged 30-39 represented 10%.

The distribution of the age groups of the cryptosporidiosis cases shows that incidences of this illness decreased in adults while amongst cases younger than 15 years old it remained constant for the entire study period (Figure). One per cent of patients under 15 years old were immunocompromised. In the 20 to 49 group, 67% were immunocompromised during in the period 1995 to 1999, decreasing to 30% between 1999 and 2002.

Figure. Evolution of the percentage distribution of the age groups. Cases of cryptosporidiosis reported to the Microbiological Information System. Spain 1995-2002.



Through the Outbreak System, eleven outbreaks of cryptosporidiosis (1455 cases, average of 132 cases per outbreak) were reported from 1995 to 2003 (the 823 cases reported through the MIS were sporadic cases not linked to outbreaks, and are not included in this figure). The number of outbreaks reported did not increase over this period (Table). In many waterborne outbreaks of gastroenteritis, the agent is unknown (27% of all such outbreaks reported in Spain in 2000) and

some of them may be caused by *Cryptosporidium*.

Table. Outbreaks of cryptosporidiosis reported to the Red Nacional de Vigilancia Epidemiológica. Spain 1995-2003 (data available at 11 December 2003).

Year	Setting	Number of people exposed, if known	Cases	Month of symptom onset	Source, if known	Comments
1997	School	200	66	October	Water supply	Failure/alterations
1998	School	519	62	April		Contamination instalation
1998*	Hotel	2500	3	July		Tourists
1999	School	138	36	October		
2000	Community		750	January	Water supply	Contamination by agricultural water
2000	Community		100	May	Water supply	Insufficient water treatment
2000*	Hotel		25	May	Swimming pool	Tourists
2000	School	45	13	October		
2001	Picnic	80	5	July	Well	No treatment water, cattle breeding
2003*	Hotel	2000	391	July	Swimming pool	Tourists
2003*	Hotel		4	July		Tourists

* Outbreaks reported by European surveillance services.
Note: No outbreaks of cryptosporidiosis were reported to the Centro Nacional de Epidemiología in Madrid during 1995, 1996 or 2002.

The settings reported included schools, hotels, the community and a picnic. The vehicle of transmission was not always reported. Where it was reported, it was always water. The source of infection was reported for six outbreaks, and was the water supply in three outbreaks, the swimming pool in two and a well in one.

The four outbreaks that occurred in hotels and affected foreign tourists were reported through European surveillance networks or directly by the epidemiological services of different countries (2). This type of outbreak is usually recognised when the tourists return home. The epidemiological information collected is limited to the name of the hotel where they stayed, the start and end dates of the holiday, and the date of symptom onset.

Commentary

It is important that cryptosporidium cases are diagnosed and reported through surveillance so that outbreaks can be detected and prevented. The MIS detects *Cryptosporidium* infections, although this system is not completely developed. At present, only five regions report cases to this system. In order to improve notification, this procedure is becoming compulsory for a designated group of representative laboratories across the whole of Spain.

The results of the information provided by the Outbreak System point to two main settings: schools and hotels. In the schools, the water supply predominated as the vehicle of transmission and in the hotels, it was the swimming pool. Coordination with environmental health authorities needs to be strengthened to improve the surveillance of this pathogen in water supply systems and swimming pools.

Only two of 11 outbreaks were community outbreaks. The reason for this could be a lack of systematic microbiological diagnosis of the human and environmental samples in the waterborne outbreaks. Since *Cryptosporidium* is a microorganism resistant to water chlorination, it could be a cause of waterborne gastroenteritis outbreaks when the water is apparently fit to drink. Research is needed into outbreaks of unknown causes compatible with *Cryptosporidium*.

The majority of the outbreaks that affected foreign tourists were reported by the same country, the United Kingdom (UK), and occurred in the same region of Spain, the Balearic Islands. This is due to an active system for the detection of infectious diseases in tourists in the UK and the large number of tourists from the UK and other western European countries who holiday here. The poor epidemiological information received from the country of origin makes the epidemiological investigation of most outbreaks very difficult. However, the implementation of systems of surveillance that permit the identification of gastroenteritis outbreaks in tourists is very useful.

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