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[SPECIAL ISSUE ON PREGNANCY AND INFECTIOUS DISEASES](#)

A number of bacterial and viral infections in pregnant women can have serious effects on the unborn child leading to impaired mental and physical health later in life. This week's issue of Eurosurveillance is dedicated to infectious diseases in pregnancy.

[SPECIAL ISSUES ON ANTIMICROBIAL RESISTANCE](#)

The emergence and spread of antimicrobial resistance (AMR) is a growing problem in many European countries. To mark the very first European Antibiotic Awareness Day, on 18 November, the scientific journal Eurosurveillance runs a series of articles to highlight main aspects of the AMR problem in Europe. They will be published in two issues on 13 and 20 November 2008.

[SPECIAL ISSUE ON SEASONAL INFLUENZA VACCINATION](#)

In preparation for the coming influenza season 2008-9, Eurosurveillance publishes a special issue on prevention of influenza by vaccination. Seasonal influenza poses a serious public health threat because of associated serious

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Surveillance report

CLUSTERS OF TRAVEL-ASSOCIATED LEGIONNAIRES' DISEASE IN ITALY JULY 2002 - JUNE 2006

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For several years, over 50% of the cases of travel-associated (TALD) reported to the European Working Group for Legionella have been among travellers to France, Italy, and Spain. We describe cases reported in these countries during a four-year period. Via EWGLINET and from the individual countries. In all three countries a cluster, local health authorities are alerted by the national authorities immediately begin an environmental investigation at the accommodation site. This includes risk assessments and analysis of water samples.

From July 1, 2002 to June 30, 2006, 2,101 accommodation sites reported TALD cases and reported by EWGLINET to Italian, Spanish and French authorities. Of these, 252 sites (12%) were associated with clusters: 13.8% (9/65) in Spain and 9.5% (75/789) in France. Overall, 641 Hotels, camping sites and ships and other sites represented respectively 7% of the total accommodation sites, with similar proportions in France. In 99% of the sites, samples were collected; 62% of them were found to be contaminated by Legionella.

The findings of this study highlight that disinfection and long-term maintenance were correctly implemented by the large majority of sites. However, more attention must be made to further reduce the percentage of re-offending sites and the number of accommodations that are contaminated by Legionella.

or associated serious morbidity and mortality. In Europe, estimates suggest that influenza is responsible for around 40,000 to 220,000 excess deaths, depending on the severity of the epidemic.

STARHS (SEROLOGICAL TESTING ALGORITHMS FOR RECENT HIV SEROCONVERSION) - PROGRESS TOWARDS ESTIMATING NEW HIV INFECTIONS IN EUROPE

Today Eurosurveillance is publishing a special issue dedicated to the widespread advances made in Europe in estimating the real number of newly acquired HIV infections based on an innovative approach called STARHS

EUROSURVEILLANCE PUBLISHES A SPECIAL ISSUE ON HEPATITIS B AND C

To tie in with World Hepatitis Day on 19 May, the scientific journal Eurosurveillance is today publishing a special issue on viral hepatitis, highlighting issues and challenges related to hepatitis B and C.

IMMUNISATION WEEK

On 17 April 2008, Eurosurveillance is publishing a special issue with articles on the measles situation in Europe. The publication is linked to European Immunisation Week which runs from 21 - 27 April.

EUROSURVEILLANCE PUBLISHES SPECIAL ISSUE ON TUBERCULOSIS

World Tuberculosis Day on 24 March commemorates the date in 1882 when Robert Koch presented his findings of the causing agent of tuberculosis (TB) – *Mycobacterium tuberculosis*. In the run up of this day Eurosurveillance publishes a special issue on the situation of TB in Europe.

SPECIAL ISSUE ON MENINGOCOCCAL DISEASE

Today (6 March, 2008), Eurosurveillance, the European peer-reviewed journal of infectious diseases, publishes a special issue on meningococcal disease. It includes two in-depth

Introduction

The European Working Group for Legionella Infections (EWGLINET) was set up to identify cases, clusters and outbreaks of travel-associated Legionnaires' disease. Collaborators in the scheme are usually national or regional representative microbiology institutes in each country and they report cases of travel-associated Legionnaires' disease to EWGLINET's coordinating centre in London. National surveillance systems follow up each case within the country of residence and then report microbiology details to the EWGLINET coordinating centre at the Health Protection Agency Communicable Disease Surveillance Centre (CDSC) in London. The data are entered into a database, and the database is searched to check whether that case should be considered as a cluster, or whether it is a single case.

The number of cases reported to EWGLINET has increased, from 11 in 1999 to 112 in 2007 due to the increase in the number of collaborating countries, which grew from 52 centres [1] and improvement in legionnaires' disease surveillance in most countries. For a number of years, over 50% of the reported cases were in travellers to France, Italy, and Spain, while the remaining cases occurred in Greece, United Kingdom, Germany, and the United States.

Before July 2002, the procedures for responding to and reporting clusters were not standardized. To standardize these procedures, a group of experts developed European guidelines in 2000 [2], which were approved and endorsed by the European Commission and the European Centre for Disease Prevention. In this article, we summarize the findings of the epidemiological investigation into these guidelines, for clusters identified in France, Italy, and Spain in the period 2000-2006.

Methods

We considered cases reported to France, Italy and Spain in the period from 2000 to 2006. The data used were those collected by EWGLINET and from the national surveillance systems. The incubation period for LD usually ranges from 2-10 days. According to the guidelines, a cluster of TALD is defined as two or more cases represented by person at an accommodation site between two and 10 days before onset of illness within the same two-year period.

Sites in which a cluster occurred and which were associated with additional cases were sent to EWGLI to say that investigations and control measures had been undertaken. Sites that were defined as 're-offending' sites were those where a cluster occurred again within the same two-year period.

When a cluster is identified, an immediate response is required, in the form of sampling and control measures. The European guidelines also require that the national collaborator in the country of infection notify the EWGLINET in London, one within two weeks of the notification of the cluster alert and the other within two weeks of the notification of the cluster alert. These reports have to confirm that measures have been taken to minimize the risk of further cases. If one or both of these two reports are not received, or they state that control measures have not been taken or are not appropriate, EWGLINET publishes the name of the cluster on its public website (www.ewgli.org). This notice is removed only once satisfactory control measures are received.

Italy and France have applied this procedure since July 2002 and have reported cases of TALD, whether acquired internally or abroad. Due to legal issues, Spain did not apply this procedure in January 2006 and prior to this date only notified cases of TALD acquired by Spanish citizens abroad, although the cases acquired abroad were investigated in accordance with the European Guidelines. In any case, in the period 2000-2006, all on all Spanish clusters for the entire study period were available.

In countries participating in EWGLINET, when a cluster is identified, it is immediately alerted by the national EWGLINET collaborator and immediately investigated, which includes identifying the risk and collecting and analysing samples. Samples are analysed by accredited regional or local environmental laboratories. The results of the analysis are reported to the EWGLINET coordinating centre in London.

articles and an editorial by the European Centre for Disease Prevention and Control (ECDC).

[All press releases](#)



of *Legionella* is based on standard methods (ISO 11131). Local authorities investigate to the EWGLINET collaborator, who in turn notifies the centre. Lastly, available clinical and environmental strains are compared reference laboratories by performing molecular analyses [pulsed-field gel genomic restriction fragments, sequence-based typing, amplified fragment etc.), to confirm that the site is the source of the cluster.

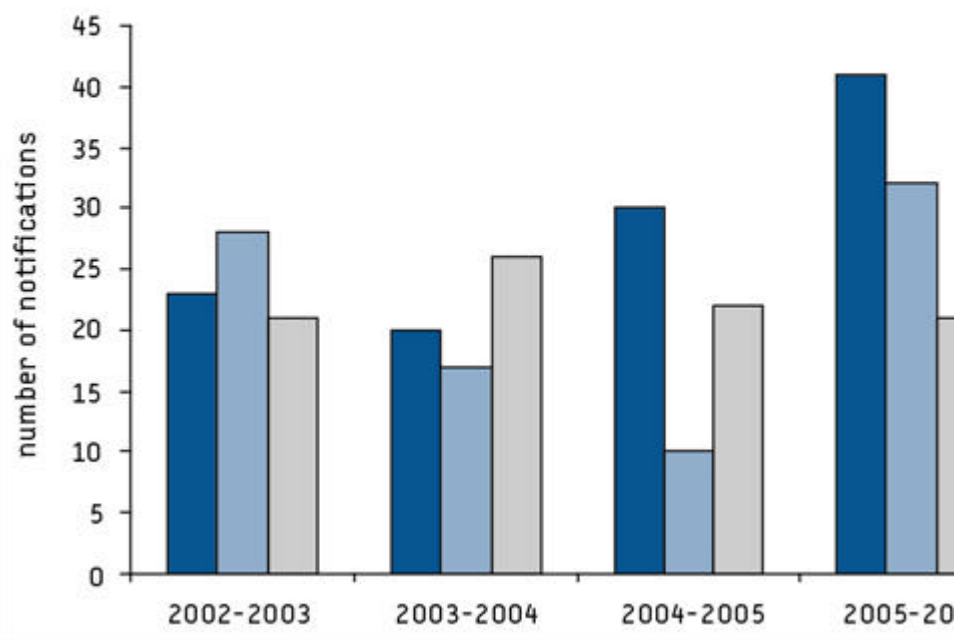
Results

In the study period, 2,101 accommodation sites were associated with TA EWGLINET to the Italian, Spanish and French collaborators. Of these associated with clusters; 13.8% (96 of the 697 sites with cases) in Italy, and 9.5% (75/789) in France. Overall, in the period 2002-2006, from 48 reported to EWGLINET were located in Italy, France and Spain.

The distribution of the clusters, by year and country during the study period. Overall, 641 cases were reported to be associated with the 252 accommodation sites. 276 cases reported to Italy, 179 cases reported to Spain, and 186 cases reported to France. The median number of days of stay of cases was five in Italy, seven in Spain and six in France. The most common mode was one day in Italy and France and seven days in Spain.

FIGURE 1

Clusters of travel-associated Legionnaires' disease in Italy, Spain and France, July 2002 - June 2006: distribution of cluster notifications by country



A large proportion of clusters consisted of French nationals travelling abroad, whereas in Spain and Italy this proportion was lower (28% and 24%, respectively) for clusters involving only foreign citizens was lower in France (19%) compared to Italy (56% and 58%, respectively) (Figure 2). Of the 252 clusters, 85 were reported by two or more different countries.

FIGURE 2

Clusters of travel-associated Legionnaires' disease in Italy, Spain and France, July 2002 - June 2006: country of origin of cases





In the three countries, the size of the clusters did not greatly vary; the most common size involved just 2 cases. In only 4% of the sites, more than four cases were

Hotels, camping sites and ships and other sites represented, respectively 33%, 28% and 39% of the total accommodation sites, with similar proportions in the three countries. In 10% of the sites with a cluster, an additional case was reported within two years (increasing the size of the cluster); for five (2%) sites, more than one add

Environmental investigations

In all three countries, environmental investigations were started with cluster notification, and control measures were implemented or recommended at accommodation sites. In some cases, investigations were already started before notification. The results of the environmental investigations are summarized in Table 1. In all of the sites (99%), samples were collected. In Spain, in one site no sample was collected because the hotelier had already carried out disinfection before the investigation; in France, the information was not available in

TABLE 1

Clusters of travel-associated Legionnaires' disease in Italy, Spain and France, July 2002 - June 2006: by country and by result

Country	Number of sites	Sites sampled No. (%)	Negative samples No. (%)	Positive, but unknown Legionella concentration No. (%)	Legionella concentration ≥1,000 No. (%)
Italy	96	96 (100)	36 (37)	3 (3)	6 (7)
Spain	81	80 (99)	33 (41)	37 (46)	3 (4)
France	75	74 (99)	20 (27)	4 (5)	14 (19)
Total	252	250 (99)	89 (36)	44 (18)	23 (9)

In more than one third (36%) of the sites, no legionella was found. In Spain, the concentration of legionella was not known, compared to 3% of the sites in France. Concentrations of legionella equal to or greater than 1,000 cfu/l (European Guidelines as requiring actions) were found in 50% of the sites in Italy and only 9% in Spain.

In Italy, five sites (5.2%) were temporarily closed for implementing control measures. One site was closed shortly after the investigation for renovation and 19 (20%) sites were seasonal and were closed during the winter season. In Spain, four sites were temporarily closed; two (2.5%) were closed for renovation; and two sites were seasonal. In France, 10 sites (13%) were closed for renovation, 12 (16%) sites were seasonal. For all of the sites that had closed, the local health authorities conducted an environmental investigation before re-opening.

The names of eight French sites (seven hotels and one campsite), ten Italian and three Spanish sites were published on the EWGLI website during the study period in accordance with the European guidelines.

Microbiological investigations

Clinical isolates were available for 20 of the 186 cases (9.3%) in France, 10 (2%) in Italy, and for two of the 179 cases (1%) in Spain. In France, 10 clinical isolates were available from patients who visited 18 sites (24%), and in 10 sites environmental isolates were available for comparison with clinical isolates. Comparison was made by pulsed-field gel electrophoresis (PFGE), and in each instance the environmental and clinical isolate had identical genomic profiles. Two clinical isolates were obtained from two different accommodation sites; in one site, all isolates were identical and in the other site, the environmental isolates were compared and found to have been identical by SBT, but

were available for further comparison [5].

In both Spain and Italy, clinical and environmental isolates were also available for comparison. The comparison showed a similar genomic profile.

Discussion

The results of the analysis reveal some differences among the three countries. In France, the length of stay in each accommodation site was short. In Spain and Italy, there was a higher proportion of clusters involving foreigners than in France, which probably indicates different patterns of travel between countries. However, the investigations performed and the results were very similar. A huge number of accommodation sites were reported to the three countries during the study period, epidemiological and environmental investigations were carried out in most clusters, and control measures were satisfactorily implemented in 96%. A negligible number of sites published on the EWGLI website. Criteria for reporting sites are not identified in the European guidelines, and the decision is left to the countries according to their national laws; this explains the differences found among the countries.

Overall, more than 60% of the sites sampled were found to be positive for legionella. In particular in Italy and France, where the concentration of legionella was high, approximately 50% of them were found to be positive at concentrations above 1000 cfu/litre. Although disinfection and long-term preventive measures were implemented at most sites, 43 sites (17%) reported additional cases after the cluster was identified during the study period. This indicates that additional efforts are needed to reduce the percentage of 're-offending' sites, so as to reduce the number of sites contaminated by *Legionella* [6]. The fact that no legionella was found in most of the environmental investigations could be because culture of water samples for *Legionella* is not sensitive, or because cases did not acquire infection in the accommodation site during the investigation.

Between 2002 and 2006, there appears to have been a trend of increasing legionellosis in Italy and Spain. The increase in the number of clusters in these two countries could be due to improved reporting and ascertainment of cases in 2005-2006, both at the national level (and in Spain) and at the European level, as demonstrated by the increase in clusters reported to EWGLI. The matching of environmental *Legionella* strains with clinical isolates is possible for a very limited proportion of cases in Italy and Spain, and in France. This is due to the low proportion of clinical isolates available, as most investigations of legionellosis mainly being performed by urinary antigen detection. Efforts should be made to encourage practitioners to collect clinical specimens.

The findings of this study highlight the importance of collaboration among countries given that the surveillance network detected 33% more clusters than would have been detected by individual countries alone. Furthermore, the European guidelines have led to a common approach to investigations across all European countries and to a greater emphasis on the importance of proactive interventions. It is thus expected that in the next few years, with the continuously increasing number of travellers, there will be a decrease in the number of accommodation sites associated with clusters.

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