



RAPID RISK ASSESSMENT

Outbreak of travel-associated Legionnaires' disease – Palmanova, Mallorca (Spain), September–October 2017

23 October 2017

Main conclusions and options for response

An increase in Legionnaires' disease cases is currently being reported in EU travellers returning from Palmanova in Mallorca, Spain. Eighteen cases, one of which was fatal, have been reported, with dates of onset between 11 September 2017 and 7 October 2017. The source of the outbreak has not yet been identified. It is suspected that this is a community outbreak.

In the absence of an identified and controlled source of *Legionella*, there may be an ongoing risk of exposure to *Legionella* bacteria for persons living in or visiting this area.

The following options for control measures should be considered in response to this outbreak:

- Inform travellers – particularly those above 50 years of age, smokers and immunocompromised persons – to seek medical advice if they experience respiratory symptoms up to two weeks after travelling to Palmanova, Mallorca. Symptomatic travellers should also mention their history of travel to an area with an outbreak of Legionnaires' disease.
- Visitors who stayed in the affected area in Palmanova from 10 October and onwards should be informed about the risk of developing Legionnaires' disease and seek medical advice if developing symptoms of pneumonia.
- Remind clinicians to consider Legionnaires' disease in patients presenting with community-acquired pneumonia who have a history of having travelled to the affected area in the two weeks prior to disease onset.
- Support the ongoing investigations of the Spanish health authorities: Member States should notify all cases of travel-associated Legionnaires' disease (TALD) to ELDSNet who have a history of travel to Palmanova and stayed in a private accommodation. This notification should be done in addition to the standard reporting procedures.
- Provide information to local residents or visitors to Palmanova to ensure prompt diagnosis and treatment, as well as case finding to delineate the extent of the outbreak. More cases are likely to be identified due to the long incubation period of Legionnaires' disease.

The implementation of precautionary control measures in technical installations (i.e. man-made water systems) identified as risk sources after site investigations by public health authorities will minimise the risk of further cases.

As Legionnaires' disease cannot be transmitted from human to human, the risk for the EU population remains limited to susceptible people living in, or visiting, the area where the outbreak has been detected.

Source and date of request

ECDC Internal Decision, 18 October 2017.

Public health issue

Outbreak of cases of travel-associated Legionnaires' disease in Palmanova, Mallorca (Spain), September–October 2017

Consulted experts

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Disease background information

Legionnaires' disease is a multi-system disease which causes pneumonia due to *Legionella* bacteria, most commonly of the species *Legionella pneumophila*. Another clinical manifestation of the infection is Pontiac fever, a self-limited febrile illness that does not progress to pneumonia. Legionnaires' disease is characterised by a non-productive cough, accompanied by anorexia, malaise, myalgia and headache. Abdominal pain and diarrhoea are also common.

Legionnaires' disease can be severe and despite improvements in diagnostics and treatment options, fatality can occur in about 4 to 5% of cases among returning travellers if not treated appropriately with specific antibiotics. Both sporadic cases and outbreaks occur worldwide, more commonly in the summer and autumn time. An outbreak of Legionnaires' disease in the community may be difficult to detect due to low attack rates (0.1–5%) [1].

The incubation period of Legionnaires' disease is, for the majority of cases, between two and ten days, with a median of six days. However, the incubation period in some cases has been described to be as long as 19 days [2]. Legionnaires' disease usually affects more males than females and those above 50 years of age, with smokers, the elderly or immunocompromised individuals at higher risk for complications.

A laboratory diagnosis of Legionnaires' disease can be made using a variety of laboratory tests including: culture/isolation of the causative organism, antigen detection in urine, a significant rise in antibody titres or PCR methods. Determination of the monoclonal subtype and molecular sequence typing can support linking between strains from the sampled environment and from patients.

Legionnaires' disease is a waterborne disease, associated with man-made water systems. In conditions that are favourable for *Legionella* growth (such as water temperatures in the range of 25–42 °C, stagnant water with sediment build-up and low biocide levels), the bacteria can multiply. The aerosolisation of contaminated water can cause sporadic cases or outbreaks through inhalation of these aerosols. Cooling towers, evaporative condensers, humidifiers, decorative fountains, whirlpools, showers etc. are examples of water systems with identified risks [1,3].

The control measures available to reduce the amount of *Legionella* in a water system depend on the system's engineering, maintenance and use. They can include structural adaptations to the water system, temperature control, disinfection using chemicals or other oxidising materials, and use of biocides or installation of filters [3].

Event background information

Epidemiological situation

As of 18 October 2017, 18 cases of travel-associated Legionnaires' disease (TALD) including a fatal case have been notified to the ECDC ELDSNet surveillance scheme [4]. These cases were notified by the United Kingdom (14 cases), France (two cases), the Czech Republic (one case) and Denmark (one case). In addition, one case of Pontiac fever was reported by the United Kingdom, and one case of non-travel associated Legionnaires' disease was detected in Mallorca in a worker at another hotel not previously related to this cluster. All hotels are located within a one-kilometre distance from each other.

The illness onset among these cases occurred between 11 September 2017 and 7 October 2017 (Figure 1). Cases are reported to be associated with a stay at one of six different accommodation sites in Palmanova, Mallorca (Spain). One accommodation is associated with nine cases while two other accommodations are associated with three cases each. These three accommodations sites are considered 'rapidly evolving clusters', as defined by ELDSNet, i.e. three (or more) cases associated with illness onset within a three-month period. ELDSNet reports all rapidly evolving clusters to tour operators who have subscribed to ELDSNet updates in accordance with the surveillance operational procedures [4]. The remaining three accommodations are reported to be associated with one TALD case each.

Seventeen of the cases are laboratory confirmed by urinary antigen test, and one case was diagnosed by PCR. The cases are aged between 45 and 90 years and include ten males and eight females (Figure 2). All cases were in the area of the outbreak two to ten days before falling ill.

Figure 1. Distribution of TALD cases by cluster sites and single sites (ELDSNet definition), in Palmanova, Mallorca (Spain), by date of onset, September–October 2017

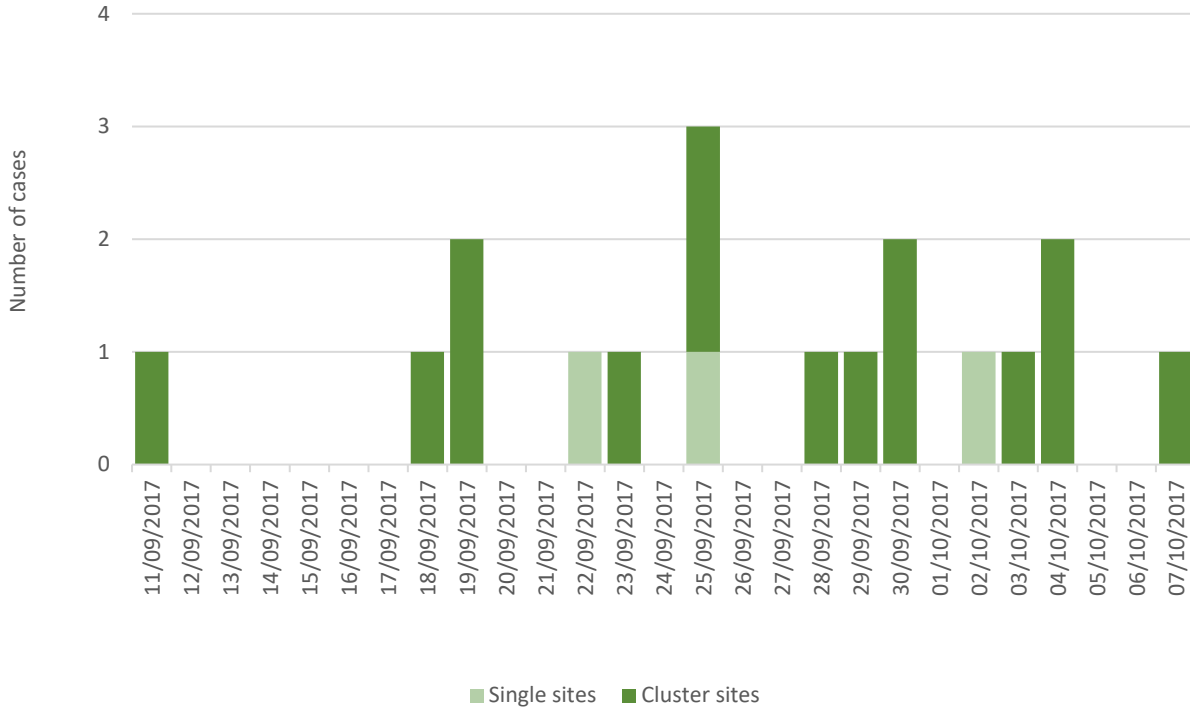


Figure 2. Distribution of number of TALD cases with travel in Palmanova, Mallorca, Spain, by age and gender, September–October 2017

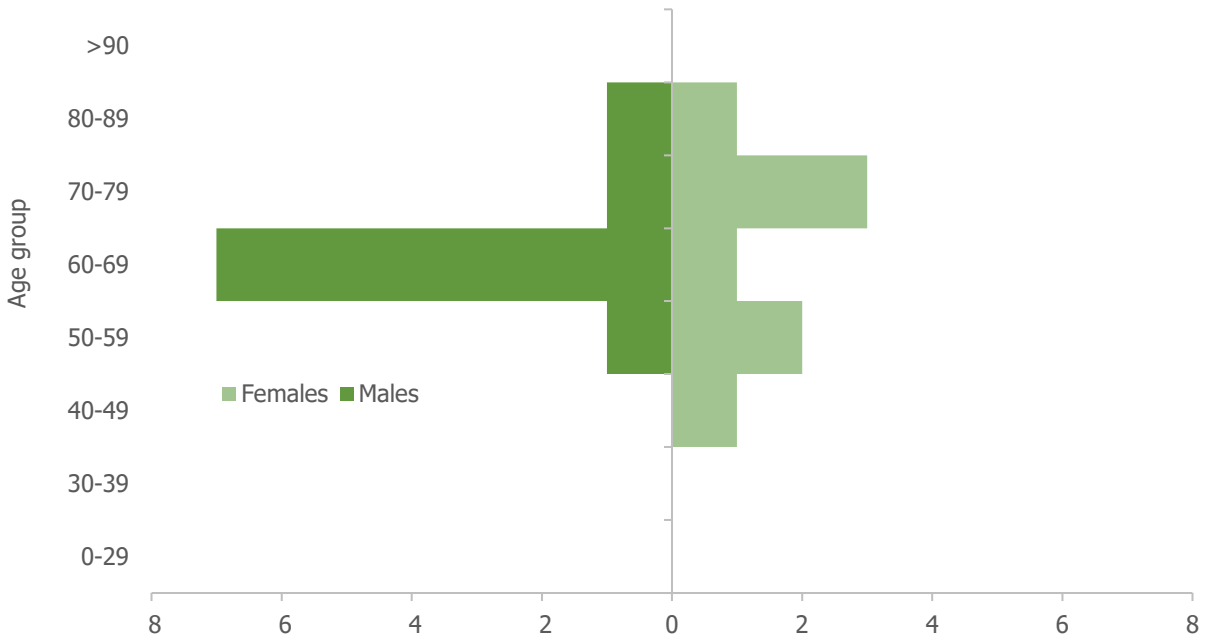
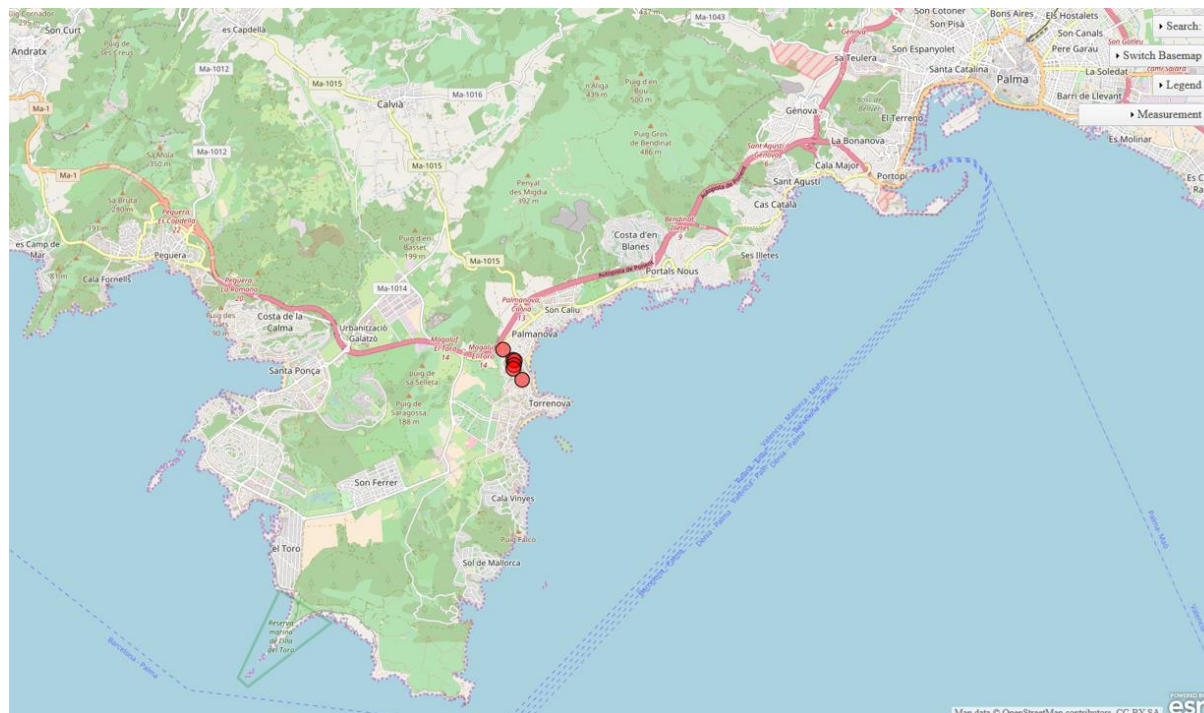


Figure 3. Geographical distribution of accommodation sites in Palmanova (N=6) where TALD cases stayed, as of 18 October 2017



Legend: Dots represent the geographical location of an accommodation site where a reported case stayed.

Source: ECDC Legionnaires' disease outbreak geographic information tool.

In addition, one person working in a hotel in the Palmanova area was notified to the Spanish authorities as a community-acquired Legionnaires' disease case. This case is an indicator that this outbreak could be a community outbreak.

Environmental investigations

Public health authorities in Mallorca, Spain, informed ECDC that environmental investigations at the six hotels were carried out. In one hotel, *Legionella* were detected in three samples from the water system and cleaning and disinfection measures were conducted. Two of the three hotels associated with rapidly evolving clusters are now closed to guests: one of the two hotels was already closed for the season when the inspection took place, and the second hotel was closed down after water samples taken at the premises were positive for *Legionella*. Potential community sources were investigated, e.g. showers at the beach, ornamental fountains, and sprinklers. The use of tanker trucks to clean the streets was stopped. In addition, four nearby restaurants with outdoor misting systems were identified and are currently under investigation. However, the outdoor misting systems have not been in use since the end of September.

More information on the movement of the cases during their stay in Palmanova is needed to assess these findings and to determine whether the outbreak is caused by a hotel facility or a community source.

The Spanish authorities plan to proceed with the following actions:

- Hotel listings of confirmed cases to assess whether travellers from more countries were affected, particularly non-EU countries.
- Clinical and environmental isolates of *Legionella* will be sent to the national reference laboratory. Isolated strains will be subtyped, strains of environmental and human origin will be compared, and routes will be established to compare them with isolates from other countries.
- A questionnaire to identify possible exposure and risk factors is currently being developed and will be shared with countries that reported cases associated with this outbreak.

ECDC threat assessment for the EU

Regular monitoring by ELDSNET indicated a significant increase in the number of TALD cases reported by different EU countries. All cases had a history of staying in commercial accommodation sites located in the Palmanova area of Mallorca between September and October 2017.

The source of the outbreak is currently not identified, and several hypotheses are being put forward in order to inform response options.

The sudden increase in TALD cases associated to several accommodation sites in close geographical proximity is suggestive of a community outbreak. The source could be in one accommodation site, with aerosols produced by, for example, cooling towers. Another possibility is the shared use of on-site facilities by cases, e.g. a spa or beach showers.

The outbreak area in Palmanova is characterised by its touristic infrastructure and a relatively small resident population, which may explain the limited number of Legionnaires' disease cases identified among local residents. This area is mainly popular with tourists from the United Kingdom.

Other guests staying at accommodation sites in Palmanova during the past two weeks may have been exposed to *Legionella*. The possibility of additional cases being reported in the coming days can therefore not be excluded.

As the source of the outbreak has not been identified and no targeted control measures could be taken, there may be a continued risk for Legionnaires' disease associated with a stay or visit to Palmanova in Mallorca, Spain.

Because Legionnaires' disease cannot be transmitted from human to human, the risk for the rest of the EU remains limited to people who have spent time in Palmanova. Travellers who have visited the area in the past two weeks and who develop symptoms of Legionnaires' disease should seek rapid medical advice and indicate their possible exposure. Especially those who have an underlying illness or a weakened immune system are at increased risk of developing the disease if exposed and may present with more severe disease.

References

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