

## Q FEVER - SPAIN: (BASQUE COUNTRY) WASTE TREATMENT FACILITY

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ProMED

International Society for Infectious Diseases <<http://www.isid.org>>

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Source: DEIA [in Spanish, machine trans., edited] <<https://www.deia.eus/2018/04/08/bizkaia/al-menos-dos-empleados-de-la-planta>

-de-residuos-estan-infectados-con-fiebre-q>

The workers of the Mechanical Biological Treatment Plant (TMB) of Monte Arraiz [Biscay, Basque Country] have relived the experience of 2014, when an outbreak of Q fever made 49 people sick. 5 years later, at least 2 employees, are infected with the bacterium *Coxiella burnetii*, which usually spreads through the placental or fetal tissues of dead animals such as cows, sheep, goats ...

In addition to the 2 confirmed cases, 3 other workers of the waste treatment plant are awaiting the result of a 2nd analysis that will be done in the coming days.

"We had been told that this had been controlled, but we see that no, it is happening again," the employees confess, worried.

For now, starting tomorrow, the entire TMB staff, composed of 130 people, will be checked to see if they are infected with the bacteria or have antibodies necessary to protect themselves. According to DEIA, the 2 people did not work at the plant 7 years ago when the 1st case occurred. The alarm sounded before Holy Week [26 Mar-1 Apr 2018], when several workers began to present the usual symptoms of Q fever. It was at that time that the pit and the tunnels had to be emptied. At that time the Basque Institute for Occupational Safety and Health (Osalan) started the protocol for these cases.

At the moment only the triage booth has been cleaned and next [Tue 10 Apr 2018] experts from Osalan plan to take samples of different [sites at] the company. Depending on the results of these samples, technicians will mark the guidelines for cleaning and disinfecting the areas that might be [contaminated] with the bacterium of animal origin. 7 years ago the Q fever outbreak forced interruption of the activity for several months. On that occasion the pit and the tunnels had to be emptied. The entire company had to undergo an exhaustive disinfection to eradicate the bacterium *Coxiella burnetii*.

Q fever can be acute or chronic. The acute form causes a febrile disease that often affects the respiratory system, although sometimes it compromises the liver.

[Byline: Sandra Atutxa]

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[Monte Arraiz, located in a mountainous area on the western outskirts of the city of Bilbao, Spain, is the site of the Mechanical Biological Treatment Plant that handles the urban waste from the city of Bilbao (<[http://garbiker.bizkaia.eus/Ing/in\\_Pag\\_438.htm](http://garbiker.bizkaia.eus/Ing/in_Pag_438.htm)>). According to this website, the waste treatment facility was likely constructed in 2013.

A map showing the location of Monte Arraiz in relation to Bilbao can be found at <[https://moovit.com/?from=Bilbao&to=Monte%20Arraiz,%20Bilbao&fll=43.260116\\_-2.92856&tll=43.252081\\_-2.966771&customerId](https://moovit.com/?from=Bilbao&to=Monte%20Arraiz,%20Bilbao&fll=43.260116_-2.92856&tll=43.252081_-2.966771&customerId)>.

Bilbao is located 16 km (10 mi) south of the Bay of Biscay; with a population of 345 141 residents as of 2015, it is the largest city in northern Spain; the Bilbao metropolitan area has about 1 million residents (<<https://en.wikipedia.org/wiki/Bilbao>>).

The following is mostly extracted from my moderator comments in ProMED-mail post Q fever - Spain: (AN)  
<http://promedmail.org/post/20130503.1689392>:

Q fever is due to *Coxiella burnetii*, an obligate intracellular rickettsia-like bacterial pathogen. It is highly resistant to drying and heat, which enables the bacteria to survive for long periods in the environment, and is attributed to a small cell variant of the organism that is part of a biphasic developmental cycle. Q fever is a zoonosis. Domestic ungulates such as sheep, cattle, and goats serve as the reservoir of infection for humans. The organism is shed in urine, feces, milk, and especially birthing products; intermittent high-level shedding occurs at the time of parturition, with millions of bacteria being released per gram of placenta.

Humans usually become infected by inhaling aerosolized organisms.

Acute symptoms of a flu-like illness usually develop within 2-3 weeks of exposure, although as many as half of humans infected with *C. burnetii* do not show symptoms

(<http://www.cdc.gov/qfever/symptoms/index.html>). Although most persons with acute Q fever infection recover, others may experience serious illness with complications that may include pneumonia, granulomatous hepatitis, endocarditis (especially in patients with previous cardiac valvulopathy), myocarditis, and central nervous system involvement. Pregnant women who are infected may be at risk for pre-term delivery or miscarriage.

Q fever is distributed worldwide with the exception of New Zealand. Q fever is primarily an occupational hazard for farmers, veterinarians, and abattoir workers in contact with domestic animals such as cattle, sheep and goats and for laboratory personnel performing *C. burnetii* cultures and working with *C. burnetii*-infected animals (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC88923/>). Sporadic cases occur in people living in urban areas that are downstream from farms or abattoirs where the organisms have become aerosolized. Occasional cases follow contact with farm animals or after contact with infected pets such as dogs and cats.

Q fever is diagnosed predominantly in Northern Spain, especially in the Basque Country and Navarre provinces, supposedly because of the greater cattle-raising activities in these areas (Maurin M, Raoult D.

Q Fever Clin Microbiol Rev. 1999;12(4): 518-553. Available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC88923/>).

A large number of cases have been also diagnosed in the Madrid area. Q fever most often presents as pneumonia in the Basque region in northern Spain, where Q fever is said to be the 2nd commonest cause of community-acquired pneumonia, whereas hepatitis is predominant in Andalusia in southern Spain. Most cases occur between March and July, corresponding to the peak in the lambing season.

The source of *Coxiella burnetii* for the current cases is not identified in the news report above. Possible sources could include remains of infected animals from farms in the area currently being processed at the waste facility, or perhaps environmental contamination by infected farm animals present before construction of the waste facility or by animal waste processed by the facility in the past, followed by persistence of the organism in the environment.

Comparing the genotype of current and prior isolates, if available, could perhaps identify transmission pathways ([https://wwwnc.cdc.gov/eid/article/18/5/11-1907\\_article](https://wwwnc.cdc.gov/eid/article/18/5/11-1907_article)).