Current legionellosis outbreak with 139 cases in Pamplona, Spain

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By 8 June 2006, 139 cases of legionellosis had been reported in an outbreak in Pamplona, north Spain. All cases presented with clinical signs of pneumonia, compatible radiography and positive urinary antigen test. The outbreak was recognised on 1 June, when 4 confirmed cases were reported to the Public Health Institute of Navarra. The number of cases diagnosed up to 8 June are presented in the figure, by date of diagnosis. Seventy six of the patients (55%) were admitted to hospital, and the other sixty three patients have been given treatment to take at home. A total of seven patients have required intensive care, and six patients remained in intensive care on 8 June, two of whom are seriously ill. No deaths have occurred. Men represent 47% of cases. The patients range in age between 21 and 97 years.

Most of the initial cases occurred in a neighbourhood close to the city centre, and the investigations began on 1 June with the inspection of 30 cooling towers in 11 buildings in this part of the city. Rapid tests for *Legionella* antigen were positive in four of the towers, located in three buildings, on 2 June, and these four towers were shut down immediately. Culture and PCR for *Legionella* have been positive in two of these cooling towers, but could not be confirmed in the other two.

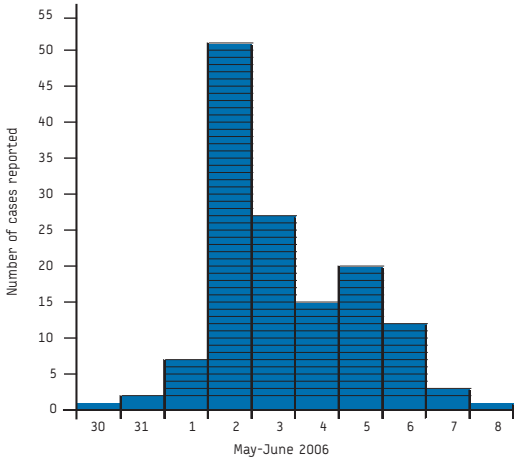
The Public Health Institute in Navarra found Legionella with low bacterial load in two further cooling towers, which were shut down on 6 June. A helicopter inspection of the area was carried out on 2 June and identified eight structures that resembled undeclared cooling towers in the investigated area, but further investigation has found that none of these structures is a cooling tower.

Microbiological culture of respiratory samples from patients are in progress. Legionella isolates from the four positive cooling towers have been sent to the reference laboratory in the National Centre of Microbiology in Majadahonda, Madrid.

The local health authorities have been issuing regular press releases giving the details of the outbreak [1-6].

Figure.

Numbers of legionellosis cases by date of diagnosis, Pamplona, May-June 2006



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Short reports

Flooding in Europe: a brief review of the health risks

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In the light of current flooding events in Bulgaria, Serbia and Romania [1], staff at the European Centre for Disease Prevention and Control (ECDC) have undertaken some preliminary review of the adverse health effects of such natural disasters.

Flood events are the most frequently occurring natural disasters worldwide, and may increase in the future as a result of climate change [2]. Adverse effects on human health include [3,4,5]:

- trauma deaths, mainly by drowning;
- injuries;
- enteric infections due to increased faeco-oral cycling from disruption of sewage disposal and safe drinking water infrastructure;
- mental health such as post-traumatic stress disorder;
- vectorborne disease, such as malaria, dengue and dengue hemorrhagic fever, yellow fever, and West Nile fever;
- rodent-borne disease, such as leptospirosis;
- poisoning caused by toxic substances;
- snake bites as snakes tend to seek shelter in households to escape from flooding;
- other negative health outcomes, such as disruption of healthcare services and population displacement.

A limited number of short term epidemiological studies have been undertaken to assess the health impacts of flooding, but there is a deficiency in studies of long term health and econoimc impacts. Population resilience is likely to vary widely depending upon the economic and organizational resources available.

Limited data on flood events shows that the greatest burden of mortality is from drowning, heart attacks, hypothermia, trauma and vehicle related accidents [4,5]. The speed of onset of floodwaters is a factor determining the number of immediate flood-related deaths.

Flood-related injuries, such as contusions, cuts, sprains have been reported in several studies [5,6], as well as burns, electrocutions, snake bites and wound infections. After the tsunami of December 2004, 106 cases of tetanus and 20 deaths were reported in Indonesia (case-fatality ratio 18.9%) [7]. However, the number of serious injuries observed after violent flooding events generally turns out to be much lower than initial estimates predict.

Several studies in developed countries have reported increases in mental health problems such as anxiety, depression, sleeplessness, and post-traumatic stress disorder among flood victims [6]. A recent survey of flooded individuals and a reference group of non-flooded individuals from the same area of residence in the United Kingdom [8] found a fourfold increase in psychological distress among adults whose homes were flooded compared with those whose homes were not (RR=4.1, 95% CI: 2.6,6.4). The risk estimates for physical illness in adults declined after adjustment for psychological distress, while psychological distress remained strongly associated with flooding after adjustment for physical illnesses. Other previous studies reported behaviour change in children as increased bedwetting and aggression [9].

There is some evidence that diarrhoea disease increases after flooding, particularly in developing countries, but also in Europe [6]. A recent UK study reported an increase in self-reported gastroentereritis associated with flooding and with increasing risk the greater the depth of household flooding (RR 1.7 [0.9,3.0] p for trend by flood depth = 0.04) and an increase in earache (RR 2.2 [1,1,4.1]) [7]. The large displacement of population that occurs after flooding, and poor sheltering conditions and crowding may also contribute to increase the risk of diarrhoeal and respiratory infections.Other studies refer to evidence of flood-associated outbreaks of leptospirosis in a wide range of countries, including Portugal (1969), the Russian Federation (1997), and the Czech Republic (2003) [3,6,10]. Transmission is believed to be promoted by skin and mucous membrane contact with water, damp soil, vegetation or mud contaminated with rodent urine. Prompt recognition of the disease and early treatment of cases is essential to minimise the impact of the outbreak.

Floods may lead indirectly to an increase in vectorborne diseases through the expansion in the number and range of vector habitats. Standing water caused by heavy rainfall or overflow of rivers can act as breeding sites for mosquitoes, and therefore enhance the potential for exposure of the disaster-affected population and emergency workers to infections such as dengue, malaria and West Nile fever. Flooding may initially flush out mosquito breeding, but this will return when the waters recede. Malaria epidemics in the wake of flooding are a well-known phenomenon in malaria-endemic areas worldwide. West Nile fever has emerged in Europe after heavy rains and flooding, with outbreaks in Romania in 1996-97, in the Czech Republic in 1997 and Italy in 1998 [3]. There is also an increased risk of infection of diseases contracted through direct contact with polluted waters, such as wound infections, dermatitis, conjunctivitis, and ear, nose and throat infections.

The effects in developed regions, such as Europe, may be different to those in developing regions. The World Health Organization Regional Office for Europe has been developing several programmes related to assessing the health effects of climate changes, including flooding, such as the project Climate Change and Adaptation Strategies for Human Health (cCASHh) [11] that covers aspects of impact and adaptation assessment for possible climate-related health outcomes in Europe. The recent Rapid Health Assessment of Flooding in Bulgaria [12], reported in 2005, covers the main public health issues that should be considered during and after a flood and is one of the most consistent documents on assessing the current situation and providing recommendations for local response to flooding.

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HIV transmission in part of the US prison system: implications for Europe

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A study in the United States (US) [1] has shown that HIV transmission has been occurring within the prison system in the state of Georgia. Between July 1988 and February 2005, 88 prisoners tested HIV-antibody negative at mandatory testing on entry to prison, and HIV-antibody positive in a subsequent requested test, indicating seroconversion during incarceration. Risk behaviours in prison, specifically sex between men and tattooing, were associated with HIV seroconversion. The estimated HIV prevalence in the US prison population is 2% [2], and a number of European countries have a considerably higher prison HIV prevalence, in some cases, more than 10% [3]. Considering the high HIV prevalence among prisoners in some European countries, and the limited number of HIV prevention and harm reduction programmes currently in place, the US study highlights the need to address and prevent bloodborne virus transmission among prisoners in Europe [4].

The US study found that those prisoners who had seroconverted to HIV were ten times more likely to report sex between men in prison than matched controls (adjusted odds ratio [AOR] 10.1, p-value<0.01), and fourteen times more likely to have been tattooed while in prison (AOR 13.7, p-value=0.01). To a lesser degree, characteristics also associated with seroconversion in prison were having a body mass index ≤25 kg/m2 on entry to prison (AOR 3.8, p-value=0.02), and being of black race (AOR 3.7, p-value=0.03). Prisoners themselves suggested that HIV prevention in prisons should include condom distribution (38%), HIV education (22%), and safe tattooing practices (13%). The study concluded that this clear evidence of transmission within the prison system indicated that effective HIV prevention is needed in prisons.