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CDR WEEKLY



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Gastroenteritis in holidaymakers returning from Andorra

On 27 January 2002 an airplane carrying ill holidaymakers returning from Andorra landed in Dublin, Republic of Ireland (1). Many of the passengers had gastrointestinal symptoms. An alert was called and the plane was met by the emergency services. The flight, originating from Toulouse, was carrying holidaymakers who had spent the week of 20-27 January on a skiing holiday in Andorra. A second flight carrying holidaymakers returning from Andorra landed in Belfast, Northern Ireland, two hours after the Dublin flight. Many of the passengers on board this flight were also ill. Passengers described an illness with principal symptoms of vomiting and diarrhoea – onset was sudden and the illness was of short duration. A 23 year old female was admitted to hospital on return to the Republic of Ireland – no cases were admitted to hospital in Northern Ireland.

The National Disease Surveillance Centre in the Republic of Ireland, and the Communicable Disease Surveillance Centre in Northern Ireland, are carrying out a joint epidemiological investigation. A common self-administered questionnaire examining demography, holiday destination details, and details on food and water consumption was sent to all passengers on both flights. One hundred and fifty-seven of the 231 respondents had stayed in hotels and 64 in self-catering apartments. The groups had stayed in three Andorran towns: Soldeu, Pas de la Casa, and Arinsal. Ninety-two respondents (overall attack rate of 39%) complained of being ill on holiday or since their return. Onset of illness peaked on 27 January when 38 people became ill. The first case became ill on 21 January and the last on 5 February. The mean duration of the illness was approximately 73 hours with a mode of 48 hours (range 10-264 hours).

Microbiological investigation revealed Norwalk-like virus (NLV) in a clinical sample from one holidaymaker. This clinical specimen was found to be strongly positive for NLV using the reverse transcriptase polymerase chain reaction. The descriptive epidemiology and microbiological findings are also consistent with an outbreak of NLV. The Andorran authorities were notified and a local investigation was undertaken to investigate potential sources of infection. Other European surveillance centres were informed of the outbreak on 4 February 2002.

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Respiratory

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Respiratory tract infections, England and Wales: laboratory reports, weeks 06-09/02

	Number of reports received				Total reports
	06/02	07/02	08/02	09/02	06-09/02
Adenovirus (excluding EM faeces)	20	19	7	38	84
Coronavirus	–	–	–	–	–
Influenza A*	46	48	20	119	233
Influenza B*	1	14	1	1	17
Parainfluenza	2	2	1	10	15
RS virus	212	273	56	301	842
Rhinovirus	1	1	1	1	4
Chlamydia sp	1	4	–	7	12
Coxiella burnetti	–	1	–	–	1
Legionella sp	4	3	1	1	9
Mycoplasma pneumoniae	39	26	16	26	107

*Reports include cases diagnosed by culture, immunofluorescence and serology (including single high titre).

Adenovirus (excluding types 40, 41, group F, EM faeces): 84 cases were reported. M 1y had meningitis. Thirty-six patients had eye infections.

Coronavirus: no cases were reported.

Influenza A: 233 cases were reported, three patients had pneumonia. M 59y had recent foreign travel Northern and Yorkshire region reported 80 cases, South East 51, South West 24, Trent 23, North West 20, Wales 19, Eastern nine, and West Midlands seven. Forty-eight per cent of cases were aged less than 15 years.

Influenza B: 17 cases were reported. South East region reported nine cases, North West six and South West two cases. Forty-seven per cent of cases were aged less than 15 years.

Parainfluenza (type 1, 2; type 2, 4; type 3, 7; type 4, 1; untyped 1). Fifteen cases were reported. Northern and Yorkshire region reported seven cases, Wales three, South East and South West two cases each, and Trent one. Fifty-three per cent of cases were aged 1 year or less.

Respiratory syncytial virus: 842 cases were reported. Two hundred and fourteen patients had bronchiolitis. M 61y with chronic lung disease; F 51y had recurrent headaches and arthralgia. Northern and Yorkshire region reported 225 cases, South East 159, South West 135, Wales 129, West Midlands 112, North West 42, Trent 26, and Eastern 14 cases. Seventy-eight per cent of cases were aged 1 year or less.

Rhinovirus: four cases were reported. Trent reported two cases, West Midlands, and South East regions reported one case each.

Respiratory chlamydia (*C. psittaci*, 6; *C. pneumoniae*, 2; *Chlamydia sp.*, 4): 12 cases were reported. One patient had pneumonia. F 32y had contact with birds.

***Coxiella burnetii*:** one case was reported by South West region.

Legionella: nine cases were reported, all with pneumonia. Three were males aged 54 to 72 years and six were females aged 52 to 74 years. M 72y, F 55y and F 70y. Eight cases were associated with travel: Spain (2), England (2), Greece (1), India (1), Malta (1), and France (1). The two cases who travelled in England are associated with an outbreak in Devon. One case, a 63 year old male, had community acquired infection.

***Mycoplasma pneumoniae*:** 107 cases were reported. Thirteen patients had pneumonia. M 7y had fever, cough and seizure; F 53y had a history of recent foreign travel. Northern and Yorkshire region reported 31 cases, South East 24, South West 21, Wales 11, West Midlands eight, North West and Eastern five cases each, and Trent two. Forty-eight per cent of cases were under 15 years of age.

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Current influenza activity in England and Wales

Levels of influenza activity have continued to decline across England and Wales over recent weeks. General practitioner (GP) consultation rates for 'influenza-like illness' in England for the week ending 3 March were 20 per 100,000 population, well below the upper threshold for baseline activity of 50 per 100,000. Consultation rates also remain low in Wales (5 per 100,000 in week ending 27 February) where the upper threshold for baseline activity is 25 per 100,000 population.

The number of influenza viruses detected from community sources by the influenza reference laboratory, Enteric and Respiratory Neurological Virus Laboratory (ERNVL), have also declined in recent weeks.

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Guidance on the use of Zanamivir

Although levels of influenza activity, as assessed by consultation rates with sentinel general practitioners have not risen to high levels this season, a substantial increase in the number of influenza viruses detected from community sources was apparent by early February 2002. This led to the recommendation, by the Department of Health, that clinicians consider the use of Zanamivir in suitable patients presenting within 48 hours of the onset of influenza-like illness (1). For further information visit www.doh.gov.uk/fluzan.htm.

The subsequent reduction in clinical influenza activity, and virus detections, means that the opportunities for the use of Zanamivir are now likely to be limited. Clinicians should, however, continue to consider the use of Zanamivir where it is clinically indicated.

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Travel health

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Dengue fever and travel

Dengue fever (DF) (also known as Break bone fever because of severe muscular pain) is a debilitating, mosquito-borne viral illness that has increased in prevalence over the past decade. It is the most significant arthropod-borne viral disease worldwide. It is endemic in about 100 countries, threatening about 40% (2.5 billion) of the world's population (1).

Travellers

Dengue is relevant to travellers, as there are currently outbreaks of DF, including DHF, in popular holiday destinations, including the examples below.

Brazil

About 75,000 cases have been reported in Rio state since the beginning of February 2002. Thirty-five thousand have been registered in the provincial capital where the carnival has just taken place, and has thousands of visitors each year. Twenty-five deaths have been reported, 14 of which were in the provincial capital. This is the worst outbreak since 1991 when 24 people died (2).

Cuba

About 1600 cases of dengue have been reported in Cuba since the beginning of 2002 and there have been two deaths (3).

Cook Islands

An epidemic of dengue has been reported in Rarotonga where 250 cases have been reported but no deaths. There were epidemics in 1991-2, 1995, and 1997. The appearance of a further epidemic could suggest that a new serotype has been introduced onto the island. Measures are being taken to reduce the spread of the disease to the other islands (4).

Solomon Islands

There is a concern that the Solomon Islands may be about to experience its first outbreak of dengue after the discovery of three cases. A public awareness programme has been put into place to educate the population about preventative measures (5).

Hawaii

Since June 2001, 111 cases of dengue have been reported. Illness has been mild and no dengue haemorrhagic fever has been reported (6).

The risk of infection to travellers is low, as long as they take precautionary measures. As there is no vaccine or chemoprophylaxis for dengue fever, travellers have to be aware that it is their responsibility to reduce the risk of mosquito bites. The mosquitoes that transmit dengue bite in the day, so in endemic areas repellent should be applied and cover up clothes worn to avoid bites. Travellers need to understand that following initial infection, further attacks of dengue may have a more serious outcome due to the risk of dengue haemorrhagic fever.

Infectious agent

DF is caused by a single-stranded RNA virus from the family *Flaviviridae*. This family of viruses also includes the Japanese encephalitis virus and the yellow fever virus. There are four different serotypes of the dengue virus: 1, 2, 3, and 4 (Den 1,2,3, and 4).

Clinical features

DF typically begins with a fever lasting from one to five days. Most primary cases in children are undifferentiated febrile illness. In adults and older children the illness may be benign or characterised by acute muscle aches, back pain, headache, pharyngitis, arthralgia, rhinitis, and cough. Various rashes may develop, and a transient generalised macular rash that blanches under pressure is common early in illness. Petechia may be seen later. Recovery is often uneventful, but may be followed by a prolonged post-viral syndrome.

Dengue haemorrhagic fever (DHF), a severe disease that can occur in a number of DF cases, is characterised by abrupt onset of fever, platelet count less than 100,000 per cubic millimetre, haemorrhagic manifestations, and evidence of increased vascular permeability, such as pleural or abdominal effusions. In a small proportion of cases, the patient can develop Dengue shock syndrome (DSS) with severe hypotension and hypovolaemia. Without appropriate treatment, 40% to 50% of cases are fatal. DHF is more likely to develop following a second infection with a heterologous dengue serotype, and almost exclusively in children under 16 years. In some outbreaks DHF prevalence has been higher among particular ethnic groups, resulting in theories about genetic predisposition.

Incubation period

Three to fourteen days, commonly four to seven days.

Transmission

Dengue is transmitted predominantly by the *Aedes aegypti* mosquito that thrives in close association with humans. They bite in the daytime, mainly in the early morning just after sunrise, and early evening. They breed in stagnant water, such as that left in old tyres, cans, or any other vessel that holds water.

Dengue can also be transmitted by the *Aedes albopictus* mosquito that originates in Asia and has been introduced into Italy and Albania in shipments of used tyres (7). It is thought that the Italian infestation was due to a shipment of tyres from Atlanta, Georgia, where it had previously been introduced also by a shipment of tyres from northern Asia (8). This shows new routes of migration for disease vectors into new areas.

Epidemiology

Dengue has been reported since the 18th century. Major epidemics occurred at intervals of 10 to 40 years in Asia, Africa, and north America. Mosquitoes and viruses were dependent on sailing vessels to transport them from one population to another, and when a new serotype was introduced, new epidemics occurred (9). This also meant that the outbreaks tended to be focussed mainly on sea ports.

The epidemiology of dengue changed after the second world war, due to increasing economic growth and the urbanisation of south east Asia in particular, where millions of people moved to the cities. Urban centres grew rapidly, with inadequate water and sewage systems, thus providing a perfect environment for the *Aedes* mosquito to breed (10). The dengue virus spread rapidly and the disease developed into pandemic proportions.

An increase in commercial air travel has subsequently aided the transmission of the virus between populations so that dengue is now endemic in over 100 countries, principally the Caribbean, central America, Mexico, Australia, the south Pacific, south east Asia, and Hawaii. It usually occurs at altitudes below 600 metres. Epidemic dengue increased in east Africa in the 1980s, and all four serotypes have now been documented throughout the African continent.

The continued increase in urbanisation, population growth and global travel introduces the co-circulation of different serotypes into new populations.

Figure Countries/areas reporting cases of dengue: 2001*



*Source: World Health Organization

Imported cases

Dengue is not endemic in the United Kingdom (UK). There are approximately 100 to 150 (probable) cases imported in to the UK every year. In 2001, the Centre for Applied Microbiology and Research (CAMR) reported 39 confirmed and 56 probable cases of dengue. Cases are confirmed following virus isolation with supporting clinical evidence where possible. Probable cases show elevated IgM antibody. Difficulties in diagnosis include cross-reactions with other flaviviruses. In addition, testing for virus has to be done within five days of onset of febrile illness, as after this it is no longer detectable.

Treatment

There is no specific treatment for dengue.

Prevention

The transmission of dengue can be reduced by preventing mosquitoes from breeding. This can be achieved through local education about environmental interventions including keeping urban areas free from waste receptacles that can collect rainwater. Vaccine development has been slow as efficacy against all four serotypes is necessary, but there are candidate vaccines at various stages of research.

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Zoonoses

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Common animal associated infections, England and Wales: laboratory reports, weeks 06-09/02

Organism	Total reports for weeks 06-09/02		Cumulative totals for weeks 01-09	
	2002*	2001	2002*	2001
<i>Borrelia burgdorferi</i> **#	–	12	–	18
<i>Leptospira hardjo</i> **##+	–	–	–	–
<i>Leptospira icterohaemorrhagiae</i> **##+	1	2	1	3
<i>Leptospira other</i> **##+	–	–	1	1
<i>Pasteurella haemolytica</i>	–	–	–	1
<i>Pasteurella multocida</i>	–	11	15	44
<i>Pasteurella pneumotropica</i>	–	–	–	1
<i>Pasteurella spp</i>	–	2	4	6
<i>Toxocara canis</i>	–	–	–	–
<i>Toxocara cati</i>	–	–	–	–
<i>Toxocara spp</i>	–	1	–	1
<i>Toxoplasma gondii</i>	2	2	6	5
<i>Toxoplasma spp</i>	1	4	5	14

* provisional data; ** by specimen date; # Lyme Disease Reference Laboratory and CDSC; ## Leptospira Reference Laboratory and CDSC; +Corrected data. Provisional data was previously published.

Common imported infections, England and Wales: laboratory reports, weeks 06-09/02

Organism	Total reports for weeks 06-09/02		Cumulative totals for weeks 01-09	
	2002*	2001	2002*	2001
Arbovirus	–	–	–	–
Dengue virus	–	–	–	–
<i>Ascaris</i> spp	1	8	5	29
Hookworm (unspecified)	–	3	1	8
<i>Ancylostoma duodenale</i>	–	–	–	–
<i>Necator americanus</i>	–	–	–	–
<i>Leptospira</i> spp	–	–	–	1
<i>Hymenolepis diminuta</i>	–	–	–	–
<i>Hymenolepis nana</i>	1	3	2	5
<i>Hymenolepis</i> spp	–	–	–	–
<i>Schistosoma haematobium</i>	1	1	6	12
<i>Schistosoma intercalatum</i>	–	–	–	–
<i>Schistosoma mansoni</i>	1	1	1	6
<i>Schistosoma</i> spp	1	2	8	5
<i>Strongyloides stercoralis</i>	2	4	2	12
<i>Strongyloides</i> spp	–	–	–	–

* provisional data