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A case of bat rabies in Lancashire

A case of rabies in an insectivorous bat has been reported from Lancashire, the first such case in the United Kingdom since 1996 (1).

On 7 July an experienced voluntary bat warden was called to see a juvenile Daubenton's bat that had been found in a distressed state – it had been in contact with a family with six dogs and two cats. The warden took the bat into her care at her home. By 11 September the bat had become aggressive and the woman was bitten on the hand, although no bleeding or cut to the skin was observed. She washed her hands after the event. By 21 September the bat was behaving more oddly and was put down. The dead bat was sent to the Central Veterinary Laboratory (CVL) for testing. On 27 September immunofluorescence tests revealed that the bat was positive for rabies. The bat warden, who had not previously been vaccinated, was seen by health professionals the following day and given rabies immunoglobulin and vaccine. It was also decided to offer rabies vaccination, but not immunoglobulin to the immediate household family members, the warden's partner, and another local bat warden who had briefly examined the bat to confirm its' identification. None of these people are known to have been bitten. None of them had they previously been vaccinated against rabies. The cats from the home of the family who found the bat have been taken into quarantine under the *Rabies Control Order (1974)*, and the dogs from the same premises have been restricted to the owners' house with a *Restriction of movements order (Form A)* served on the premises. The bats caged with the infected bat at the warden's house (another Daubenton's bat and a Brandt's bat) have also been quarantined, and other bats at the warden's home are also restricted under a *Restriction of movements order (Form A)*.

All bats in Britain are protected species and should not be handled, particularly if sick or injured. Anyone who is bitten or scratched by a bat should contact a doctor immediately, who should, in turn, seek expert advice. This is available from the PHLS Virus Reference Laboratory (tel: 020 8200 4400) or through the CDSC duty doctor (tel: 020 8200 6868). The wound should be thoroughly cleaned by scrubbing with soap and water under a running tap for five minutes as soon as possible (2). It is recommended that licensed bat handlers should have pre-exposure immunisation against rabies (2). In the light of this incident, and that in 1996, this should be taken to include voluntary bat wardens who, by the nature of their work, are at risk of being bitten. The effectiveness of rabies vaccine against EBL is unknown.

The isolate has been typed as European bat lyssavirus (EBL) type 2 [genotype 6]. There are different genotypes of the rabies virus: genotype 1 is the regular animal rabies strain that is also found in bats in

the United States where cases of human rabies following exposure to bats have been seen (3). European bat lyssavirus (EBL) types 1 and 2 are genotypes 5 and 6, and are rarely passed to or between other terrestrial mammals. The last case of rabies in a bat in the United Kingdom was in Newhaven, Sussex, in May 1996, also in a Daubenton's bat (1). Gene sequencing of the 1996 case matched EBL from the Swiss/German border, suggesting that the bat may have been a migrant (4). The isolation of EBL from what appears to be a resident British bat suggests that EBL may be circulating in British bats at low levels. The CVL has, however, been undertaking surveillance of bats for rabies and has tested around 200 since 1996, and 1800 before then. Only two bats, those in the two incidents reported here, have been rabies positive.

There have only been three recorded deaths in Europe known to be associated with bat rabies in the past 35 years, one in Finland and two in the former Soviet Union (5). None had been immunised prior to exposure.

1. CDSC. Bat brings rabies to Britain. *Commun Dis Rep CDR Wkly* 1996; **6** (24): 205. Available online at <http://www.phls.org.uk/publications/cdr/CDR96/cdr2496.pdf>.
2. UK Departments of Health. *1996 immunisation against infectious disease*. London: HMSO, 1996.
3. CDC. Human rabies – California, 1995. *MMWR Morb Mortal Wkly Rep* 1996; **45**: 353-6.
4. DEFRA. *Suspected case of bat rabies in Lancashire. (Press release 394/02)* London: DEFRA, 1 October 2002.
5. British Medical Association. *BMA guide to rabies.* Oxford: Radcliffe, 1995.

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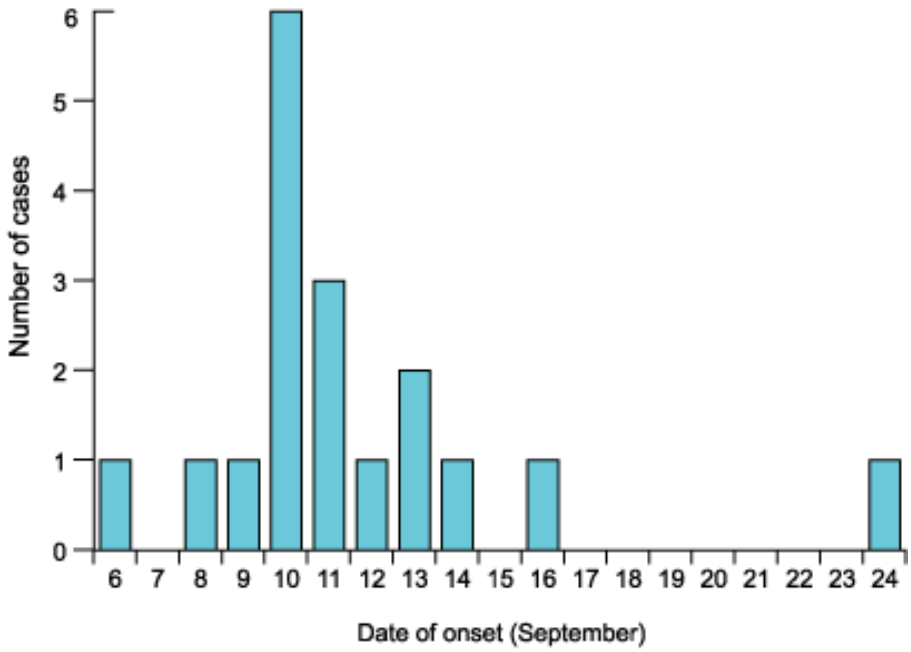
National increase in *Salmonella* Enteritidis PT 14b

Sixty-eight confirmed cases of *Salmonella* Enteritidis PT 14b (not known to be linked with foreign travel) have been reported to PHLS Communicable Disease Surveillance Centre (CDSC) by the PHLS Laboratory of Enteric Pathogens (LEP) since 26 September 2002. The majority (45/68) were males. The age range of the cases is less than one year to 93 years (median 32 yrs; mean 34 yrs). For the 18 cases for whom dates of onset of illness are available, the earliest onset was the 6 September and the latest so far reported is 24 September (figure 1). The majority of cases are from London and the south east. There is an outbreak in north Hampshire, which is being investigated locally. Four of nine cases in that outbreak had eaten food from a local café and, in addition, two people from outside the local area who were on holiday there have a link to the café. Trawling interviews are also being conducted by CDSC among cases not linked with north Hampshire in order to generate hypotheses for the outbreak food vehicle.

Figure 1 Epidemic curve (N=18)



LEP reported on 393 human isolates of *S.* Enteritidis PT 14b in 2001. Of these, 40% were linked to foreign travel, particularly to Greece (19%) and Mediterranean countries. The isolates of S. Enteritidis

PT 14b associated with Greece and the Greek Islands are predominantly anaerogenic whereas the remainder, and the current outbreak strain in England, are aerogenic. The outbreak strain is fully sensitive to the range of antimicrobials used by the LEP for epidemiological typing.

CDSC would be grateful to hear of any other local outbreaks of *Salmonella* Enteritidis phage type 14b. Please contact Sarah O'Brien (tel: 020 8200 6868 ext 4422) or Bob Adak (ext 4551).

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Influenza weekly reports 2002-3

The influenza season is approaching, and the Department of Health has launched the national flu campaign this week (1). The policy remains unchanged for target groups, with vaccination recommended for all people aged 65 years and over, as well as people of all ages with underlying medical conditions and/or those in residential or nursing homes.

Following the success of last year's flu campaign for vaccination of those aged 65 or more, when an average uptake of 68% was achieved, the target has been increased to 70%. For a second year, monitoring of vaccination uptake among patients aged 65 years or more and among healthcare workers will continue to be undertaken by the PHLS Communicable Disease Surveillance Centre on behalf of the Department of Health. This will take place within the newly reorganized structure of the NHS with the previous responsibilities of the 95 health authorities transferred to the smaller and more numerous primary healthcare trusts.

Clinical activity for influenza-like illness is currently at baseline levels and no confirmed cases have yet been identified.

This week the PHLS has published the first of its updates on flu activity for the 2002-03 season at <http://www.phls.co.uk/topics_az/influenza/flu.htm>. This update will be published on the PHLS web site fortnightly while levels of activity remain low, and then every Wednesday throughout the flu season.

If you wish to receive an email notification when the report has been published please send your email address to <respcdsc@phls.org.uk>

1. Department of Health. *Keep your guard up against flu. Press Release 2002/0398.* London: Department of Health, 1 October 2002. Available online at <http://tap.ukwebhost.eds.com/doh/intpress.nsf/page/2002-0398?OpenDocument>.

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Respiratory

Last updated: 5 September 2002
Next update due: 3 October 2002

Respiratory tract infections, England and Wales: laboratory reports, weeks 36-39/02

	Number of reports received				Total
	36/02	37/02	38/02	39/02	36/02 39/02
Adenovirus	52	21	31	14	118
Coronavirus	0	0	0	0	0
Influenza A	2	3	2	5	12
Influenza B	4	0	1	1	6
Parainfluenza	7	16	12	8	43
Respiratory Syncytial virus	21	7	7	16	51
Rhinovirus	2	0	1	0	3
Respiratory Chlamydia	4	0	2	2	8
Coxiella Burnetti	0	1	0	0	1
Legionella	data not available				
M.Pneumoniae	34	37	2	21	115

Adenovirus: (excluding types 40, 41, group F, EM faeces): One hundred and eighteen cases were reported. Eighty-four patients had eye infections.

Coronavirus: no cases were reported.

Influenza A: twelve cases were reported. Northern and Yorkshire region reported 5 cases, Trent 1, North West 1, Eastern 1, South East 2 and South West 2. Ten cases were aged 15 years or more.
One case M 19y with lymphoma.

Influenza B: six cases were reported. Eastern region reported 1 case and South East 5. Four cases were aged 15 years or more.

Parainfluenza: (type 1,0; type 2,0; type 3,29; type 4,0; un typed 14). Forty-three cases were reported. Northern and Yorkshire region reported 6 cases, Trent 9, West Midlands 5, Eastern 1, London 9, South East 4, South West 9. 42% of cases were aged less than 1 year. One case, F 10m aquired her infection in hospital.

Respiratory syncytial virus: 51 cases were reported. Five patients had bronchiolitis. Northern and Yorkshire region reported 17 cases, Trent 7, West Midlands 4, North West 6, Eastern 10, London 1, South East 3, South West 1 and Wales 2 cases. 74% of cases were aged 1 year or less.

Rhinovirus: three cases were reported. Trent reported 1 case, West Midlands 1 and South East 1.

Respiratory Chlamydia: (*C. psittaci*, 5; *C. pneumoniae*, 1; *Chlamydia* sp, 2): eight cases were reported.

Coxiella burnetii: one case was reported from South East region.

Legionella: data not available. We hope to publish data from week 36 with the next report..

Mycoplasma pneumoniae: one hundread and fifteen cases were reported. Ten patients had pneumonia. Northern and Yorkshire region reported 35 cases, Trent 6, West Midlands 10, North West 1, Eastern 10, London 2, South East 10 South West 40 and Wales 1 case. 46% of cases were aged less than 15 years.

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Zoonoses

Last updated: 3 October 2002
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Common animal associated infections, England and Wales: laboratory reports, weeks 36 - 39/2002

	Total reports for weeks 36 – 39 2002* 2001		Cumulative totals for weeks 01–392002* 2001	
Organism	**2002***	**2001**	**2002***	**2001**
*Borrelia bugdorfer**'#	20	38	111	220
*Leptospira hardjo***'##	_	2	2	3
*Leptospira icterohaemorrhagiae***'##	_	_	4	8
Leptospira other**'##	4	2	12	6
Pasteurella haemolytica	_	1	2	3
Pasteurella multocida	12	23	142	220
Pastaurella pneumotropica	_	_	2	3
Pasteurella spp	3	5	44	56
Toxocara canis	_	_	2	_
Toxocara cati	_	_	_	_
Toxocara spp	_	1	_	1
Toxoplasma gondii	3	2	21	22
Toxoplasma spp	8	2	42	43

* provisional data; ** by specimen date; # Lyme Disease Reference Laboratory and CDSC;
Leptospira Reference Laboratory and CDSC.

Common imported infections, England and Wales: laboratory reports, weeks 36 - 39/2002

Organism	Total reports for weeks 36 - 39 2002*	2001	Cumulative totals for weeks 01-39 2002*	2001
Arbovirus	–	–	–	–
Dengue virus	2	–	12	–
***Ascaris* spp**	8	13	83	86
Hookworms (unspecified)	2	3	115	39
***Leptospira* spp**	–	1	1	12
Ancylostoma duodenale	–	–	–	–
Necator americanus	–	–	–	–
Hymenolepis diminuta	–	1	–	1
Hymenolepis nana	1	5	19	35
***Hymenolepis* spp**	–	–	v	–
Schistosoma haematobium	6	4	34	36
Schistosoma intercalatum	–	–	–	–
Schistosoma mansoni	2	–	17	11
***Schistosoma* spp**	1	9	16	28
Strongyloides stercoralis	1	3	11	21
***Strongyloides* spp**	–	–	2	2

Travel health

Last updated: 3 October 2002
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Malaria prevention in travellers, particularly to Africa

The purpose of this week's travel advice is to provide information for travellers from the United Kingdom (UK) to malarious places during the autumn and winter, and particularly to address issues of risk, and the basis for choice of chemoprophylaxis.

Summary

The key messages for travellers to malarious areas are, as always:

- be aware of the malaria risk
- avoid mosquito bites by wearing suitable clothes, using screening, mosquito nets, repellents, and sensible behaviour
- if there is significant risk, take chemoprophylactic medicines regularly
- in the event of a fever or flu-like illness within three months (especially) or even a year after returning, the traveller should within a day seek medical advice and point out the visit to a malarious area
- people travelling to Africa south of the Sahara are at particular risk of severe illness and death from falciparum malaria. Most of those who contract malaria there are either failing to take regular chemoprophylaxis or are taking regimens that are neither effective nor currently recommended

For chemoprophylaxis in high-risk areas with highly chloroquine-resistant falciparum malaria (*eg* Africa south of the Sahara, parts of Indonesia and Papua New Guinea etc) there is now a choice between three medicines: mefloquine, doxycycline, and atovaquone/proguanil, so that it should be very possible to find an appropriate regimen for most travellers.

- The key causes of problems, and sometimes tragedies, are:
- Failure to take any chemoprophylaxis on visits to high-risk areas, especially Africa (south of the Sahara).
- Relying on proguanil plus chloroquine in Africa although it is no longer appropriate for most areas, or taking some other regimen that is not recommended.
- Failing to complete the courses of prophylaxis - these last for four weeks after return for most regimens and at least seven days.

For precise information by region, country, age, and in the presence of concomitant illness or medication, see the UK Malaria guidelines (1) which are available online at either <http:// www.malaria-reference.co.uk> or <http://www.phls.org.uk/publications/cdph/issues/CDPHvol4/ No2 /malaria_guidelinesp.pdf>, or the summary given in the British National Formulary <http://www.bnf.org>.

Risk – parasites

There are four different sorts of human malaria, due to different parasite species. Falciparum malaria is much the most dangerous. If it is untreated it can go on to complications such as cerebral malaria, where the patient goes into coma and may die. Currently falciparum malaria is also the most common form contracted by travellers from the UK, comprising 76.9% of reported cases in 2001, with a further 0.7% of mixed infections due to falciparum plus another species of malaria in the same patient. Falciparum malaria is predominantly a disease of the hot tropics.
Unfortunately, falciparum malaria has become resistant to the common, safest and least expensive antimalarials in many parts of the world, so the chemoprophylaxis recommended is very much driven by the resistance levels of Plasmodium falciparum in the place to be visited.

In most places where falciparum malaria occurs there is also vivax malaria, less lethal but still very unpleasant. (In west Africa where local inhabitants and their descendants are usually not susceptible to vivax malaria, ovale malaria takes over from vivax). But vivax becomes more important in subtropical areas as it can survive cooler weather than P. falciparum, which needs a higher maximum temperature if it is to develop in the mosquito vector. Consequently, P.vivax predominates in the subtropics, and, so far as UK travellers are concerned, particularly affects visitors to the Indian sub-continent.

Vivax malaria can also have a much longer incubation period than falciparum malaria, and the parasites can persist in the liver cells even after appropriate treatment has killed the blood stages, so that relapses can occur a year or more after the time of infection.

Risk – place

In 2001, 98% of imported falciparum malaria, where the place of infection was known, had been contracted in Africa south of the Sahara and all 9 people who died from malaria had acquired it in Africa. This is consistent with the very high levels of transmission there. Because chloroquine resistance is prevalent and widespread in Africa the need for appropriate chemoprophylaxis there is obvious.

The ten countries that act as the source of 88% of falciparum malaria diagnosed in the UK are all in Africa. Several (Nigeria, Ghana, Sierra Leone, and Uganda) are more usually destinations for those visiting friends and relations, together with a smaller number of aid agency workers and business visitors. The Gambia and Kenya, however, are major holiday destinations for which adequate prophylaxis is also essential. Chloroquine alone or with proguanil no longer gives adequate protection for the traveller to these countries, nor to most other parts of Africa.

Risk – person

The largest single group of imported malaria consists of settled immigrants to the UK and their descendants visiting friends and relations in their country of origin. Thus imported malaria is particularly a problem facing minority travellers. Ininety per cent of all reported falciparum malaria from London occurs in people of African origin or descent. Such visitors to Africa stay in places where the risk is greatest, usually tend to be abroad longer than holiday makers, and fail to take adequate antimalarial prophylaxis under the mistaken impression that they are immune. This is not so: in the absence of repeated malaria infection by mosquito bites immunity to the disease, which is never complete, wanes steadily, so that UK residents of African descent may have little protection against illness, even if they suffer a lower case fatality rate, and their children have no natural immunity.

Although many holiday makers and business people visiting Africa take chemoprophylaxis, a substantial number do not, and the vast majority of malaria cases encountered in the UK failed to take prophylaxis.

Risk – vectors and levels of risk

Although there are many countries where there is a risk of contracting malaria, the level of that risk varies greatly, even among countries where the local inhabitants consider it to be their main health problem. This is because even if the average locally resident person gets about one infectious bite from a mosquito annually, many of those people will get an attack of malaria each year and it will indeed be a major problem. At the highest levels of transmission, in some parts of Africa, however, people tend to get on average an infectious bite each night. For the local inhabitants this means that children get infected in early infancy and, although they may get very ill or die at that stage, they will have some

partial resistance to the disease by the time they reach adolescence. This is the situation for the indigenous people who remain locally resident.

The situation is completely different for the visitor from the UK, and for the immigrant who has settled in the UK and may be revisiting the country of origin. Here, the risk in the most highly malarious countries will be very high: during a two week visit the person who takes no precautions is likely to receive several infectious mosquito bites and to be at high risk of contracting malaria, with potentially fatal consequences.

Although epidemics hit the headlines, paradoxically the most malarious places are where everyone locally is infected for much of that time and there risk to visitors is even greater.

Moreover, this risk is associated with anopheline mosquitoes that are long-lived and preferentially feed on humans; they may or may not appear numerous to the visitor. Mosquito longevity and biting habits are much more important than mosquito numbers in transmission. Furthermore, the mosquitoes that irritate the visitor are often not the ones that spread malaria, while the anopheline mosquito vectors of the disease may not be noticed.

Anti-malarial drugs for prevention of chloroquine-resistant falciparum malaria

There used to be very little choice of chemoprophylaxis for people visiting Africa and parts of latin America and south-east Asia, where falciparum malaria is resistant to chloroquine, and often other treatments too. Chloroquine plus proguanil was not very effective and mefloquine had a bad press. Now the situation is much better (see the current UK malaria guidelines [1]), with three effective regimens from which to choose:

- Mefloquine 1 tablet weekly beginning 2.5 weeks before and continuing while abroad and for one month after return
- Doxycycline 1 capsule daily beginning just before departure and continue for one month after return
- Atovaquone/proguail (Malarone) one tablet daily beginning just before departure and continue for seven days after return.

The main disadvantages of each are occasional neuropsychiatric problems with mefloquine, occasional abdominal problems with doxycycline, and the high cost of Malarone. The necessary discussion with the patient to decide between these regimens provides an opportunity to gain commitment from the patient to compliance with the regimen selected. Unfortunately there is still little choice for paediatric use as doxycycline is contraindicated in children, and atovaquone/proguanil is not licensed for paediatric use.

The full UK guidelines should always be consulted (1), and especially so for those with concomitant disease or medication, for children and for those who are pregnant or who are aiming at pregnancy or are lactating.

1. Bradley DJ, Bannister B on behalf of the Advisory Committee on Malaria Prevention for UK Travellers. Guidelines for malaria prevention in travellers from the United Kingdom for 2001. *Commun Dis Public Health* 2001; **4** (2): 84-101

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