



# Health Protection Report

weekly report

**Current Issue:** Volume 1 Number 41 **Published on:** 12 October 2007

## Current News

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- ▶ KPC carbapenemase from a *Klebsiella pneumoniae* isolate in Scotland
- ▶ First case of Eastern equine encephalitis in a UK traveller
- ▶ Healthcare Commission finds failings in infection control at Maidstone and Tunbridge Wells NHS Trust
- ▶ Beginning of flu reporting season
- ▶ Measles, Mumps, and Rubella surveillance during the postal disruptions

## Infection reports

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### Enteric

- ▶ General outbreaks of foodborne illness in humans, England and Wales: weeks 36-40/07
- ▶ *Salmonella* infections, (faecal specimens) England and Wales, reports to the HPA (*Salmonella* data set): August 2007
- ▶ Common gastrointestinal infections, England and Wales: laboratory reports: weeks 36-40/07
- ▶ Less common gastrointestinal infections, England and Wales: laboratory reports: weeks 27-39/07

## Diary

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- ▶ A practical guide to reducing MRSA

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## News

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  - ▶ Healthcare Commission finds failings in infection control at Maidstone and Tunbridge Wells NHS Trust
  - ▶ Beginning of flu reporting season
  - ▶ Measles, Mumps, and Rubella surveillance during the postal disruptions
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### KPC carbapenemase from a *Klebsiella pneumoniae* isolate in Scotland

An 81 year old man, who had a urinary catheter inserted in a Scottish hospital in May, was readmitted in June and again, to a different hospital, in September for a blood transfusion. A catheter-stream urine collected on admission in September grew a multi-resistant *Klebsiella* sp. susceptible to only gentamicin among first and second line antibiotics. The isolate was resistant to all  $\beta$ -lactams, including carbapenems, to fluoroquinolones and to aminoglycosides except gentamicin; it was susceptible to polymyxins and intermediate to tigecycline. Investigation at the HPA's Antibiotic Resistance Monitoring and Reference Laboratory (ARMRL) revealed the organism to be a *K. pneumoniae* producing a KPC-type class A carbapenemase (*ie* carbapenem-hydrolysing  $\beta$ -lactamase). Gram-negative bacteria, particularly klebsiellae, with KPC carbapenemases have spread substantially in the United States, Colombia and Israel during the past three to four years, creating major treatment problems. These enzymes are often plasmid-mediated, facilitating their spread among species and strains.

Five days after admission the patient, who had no history of foreign travel, developed a urinary catheter-related bacteraemia with a *Klebsiella* strain that had the same antibiogram as the original isolate. He was treated with gentamicin and ciprofloxacin (for chronic sternal osteomyelitis caused by *Serratia marcescens*), and made a good recovery, being discharged with a six week course of ciprofloxacin.

This is the second time that ARMRL has identified a KPC enzyme in the United Kingdom; the previous isolate, also from Scotland, was an *Enterobacter cloacae* collected in 2003. There was no spread on that occasion, but the subsequent international experience demonstrates the risks associated with KPC enzymes and the concern raised by their reappearance.

Laboratories are reminded to be vigilant in watching for new or unusual resistance patterns, and are advised to be particularly alert to carbapenem resistance in gram-negative bacteria. A listing of phenotypes warranting reference investigation is available on the HPA website at <http://www.hpa.org.uk/cfi/armrl/testing.htm>. A good review on KPC enzymes and the US experience with them has been published recently [1].

### References

1. Queenan AM, Bush K. Carbapenemases: the versatile  $\beta$ -lactamases. *Clin Microbiol Rev* 2007; **20**:440-58.

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### First case of Eastern equine encephalitis in a UK traveller

A 35 year old patient suffering from Eastern equine encephalitis (EEE) is seriously ill and receiving treatment in the Western General Hospital, Edinburgh, according to Lothian NHS Board. This is thought to be the first case in a traveller from the United Kingdom.

EEE is a viral disease transmitted by mosquitoes and occurs in the eastern, Gulf and north central United States (US) and adjacent parts of Canada, in parts of central and South America, and the Caribbean. It is a very rare disease with an average of five cases a year reported in the US. This compares with 4269 cases (177 fatalities) of West Nile virus (WNV) infection reported in the US in 2006. EEE, however, has a high mortality rate of approximately 35%. There is no specific treatment and approximately half of those surviving infection will have mild to severe permanent neurological damage.

The main EEE virus transmission cycle is between birds and mosquitoes. Transmission to horses or humans requires mosquito species, such as some *Aedes*, *Coquillettidia*, and *Culex* species, that are capable of creating a 'bridge' between infected birds and uninfected mammals. Horses are considered to be 'dead-end' hosts for the virus, as the amount of virus in their bloodstreams is usually insufficient to infect mosquitoes.

The risk of travellers to the US acquiring infection with EEE virus is extremely small. No human vaccine against EEE virus is currently licensed. Travellers to the US should protect themselves from infection with EEE, and more common viral infections such as West Nile virus, by using personal and environmental mosquito bite avoidance measures. Further advice on this is available from the National Travel Health Network and Centre's [insect bite avoidance fact sheet](http://www.nathnac.org/pro/factsheets/iba.htm) <<http://www.nathnac.org/pro/factsheets/iba.htm>>.

Further information on EEE is available on the Centers for Disease Control and Prevention website at <http://www.cdc.gov/ncidod/dvbid/arbor/eeefact.htm> . (Figures for WNV infection were taken from [http://www.cdc.gov/ncidod/dvbid/westnile/surv&controlCaseCount06\\_detailed.htm](http://www.cdc.gov/ncidod/dvbid/westnile/surv&controlCaseCount06_detailed.htm) ).

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### Healthcare Commission finds failings in infection control at Maidstone and Tunbridge Wells NHS Trust

The Healthcare Commission has published a report detailing significant failings in infection control at Maidstone and Tunbridge Wells NHS Trust. The Commission conducted an investigation into the trust following a referral from the strategic health authority, which monitors the trust's performance, after a major outbreak of *Clostridium difficile* in 2006. The investigation looked at the trust's control of infection and the quality of care for patients with *C. difficile* between April 2004 and September 2006.

The Commission identified serious concerns about how patients with *C. difficile* were cared for, particularly during two outbreaks of the infection. It has called for changes to improve the care of patients and control of infection at the trust. The Commission calls for *C. difficile* to be managed as a serious medical condition in its own right, not just a clinical complication.

Between April 2004 and September 2006, more than 1,170 patients were infected across the trust's three hospitals. Based on a sample of patient records, the Commission estimates that

about 90 of these patients definitely or probably died as a result of the infection. Sixty of those deaths occurred in two major outbreaks.

In 2006, over 55,000 cases of *C. difficile* infection were reported in the DH Mandatory Surveillance of patients over the age of 65 years. It is important for all NHS Trusts to review the management and control of *C. difficile* infections and achieve low rates rapidly. The control measures have been outlined in the DH High Impact Intervention No. 7 <[www.dh.gov.uk/prod\\_consum\\_dh/idcplg?IdcService=GET\\_FILE&dID=147778&Rendition=Web](http://www.dh.gov.uk/prod_consum_dh/idcplg?IdcService=GET_FILE&dID=147778&Rendition=Web)> and the *HPA Good Practice Guide to Control Clostridium difficile*, available at [http://www.hpa.org.uk/RMN/pdf/cdiff\\_control.pdf](http://www.hpa.org.uk/RMN/pdf/cdiff_control.pdf).

## References

1. *Investigation into outbreaks of Clostridium difficile at Maidstone and Tunbridge Wells NHS Trust*. London: Healthcare Commission, 2007. Available at <[http://www.healthcarecommission.org.uk/\\_db/\\_documents/Maidstone\\_and\\_Tunbridge\\_Wells\\_investigation\\_report\\_Oct\\_2007.pdf](http://www.healthcarecommission.org.uk/_db/_documents/Maidstone_and_Tunbridge_Wells_investigation_report_Oct_2007.pdf)>

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## Beginning of flu reporting season

The first week of October is the beginning of the influenza activity monitoring season and signals the return of reporting on influenza and other respiratory virus surveillance. The HPA National Influenza Reports for 2007/08 season will now be published fortnightly until such time as activity begins to increase. They will then be published weekly. A short summary of activity will be made available in the weeks between the fortnightly reports. The first summary was published on 10 October and the first full influenza report will be published on Wednesday 17 October. These reports can be found on the HPA website at <[http://www.hpa.org.uk/infections/topics\\_az/influenza/seasonal/activity0708/weekly\\_summary.htm](http://www.hpa.org.uk/infections/topics_az/influenza/seasonal/activity0708/weekly_summary.htm)>

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## Measles, Mumps, and Rubella surveillance during the postal disruptions

During the current disruptions to the postal service, oral fluid samples for measles, mumps and rubella surveillance should be collected as usual, and the samples stored in a normal refrigerator until the end of the disruptions, and then mailed to the HPA Centre for Infections (CfI) as normal. If a strike is called after a sample has already been sent, CfI will still test the specimen and results are likely to be valid if there is no evidence of bacterial contamination. If samples are received after a prolonged period out of the fridge any unexpected results should, as always, be discussed with CfI. For any urgent samples, or when a more timely result is required arrangements will need to be made to send the samples to CfI by courier or through the Hayes DX system. We are also exploring the possibility of arranging for the results of testing to be made available through the Document Gateway.

# Enteric

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## Enteric Routine Data Reports

- ▶ General outbreaks of foodborne illness in humans, England and Wales: weeks 36-40/07
  - ▶ Salmonella infections, (faecal specimens) England and Wales, reports to the HPA (Salmonella data set): August 2007
  - ▶ Common gastrointestinal infections, England and Wales: laboratory reports: weeks 36-40/07
  
  - ▶ Less common gastrointestinal infections, England and Wales: laboratory reports: weeks 27-39/07
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## General outbreaks of foodborne illness in humans, England and Wales: weeks 36-40/07

Health Protection Unit	Organism	Location of food prepared or served	Month of outbreak	Number ill	Cases positive	Suspect vehicle	Evidence
Northumberland, Tyne and Wear	<i>Salmonella</i> Enteritidis	Function	September	14	14	–	–

M (microbiological): identification of an organism of the same type from cases and in the suspect vehicle, or vehicle ingredient(s), or detection of toxin in faeces or food; D (descriptive): other evidence, usually descriptive, reported by local investigators as indicating the suspect vehicle or food; S (statistical): a significant statistical association between consumption of the suspect vehicle(s) and being a case.

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### Salmonella infections (faecal specimens), England and Wales, (reports to the HPA salmonella data set): August 2007

Details of 1373 serotypes of Salmonella infections recorded in August are given in the table below. In September 2007, 1156 Salmonella infections were recorded and preliminary information was received about one outbreak (see table above).

	August 2007
S. Enteritidis (PT4)	223
S. Enteritidis (other PTs)	621
S. Typhimurium	161
S. Virchow	58
Others (typed)	310
<b>Total Salmonella (provisional data)*</b>	<b>1373</b>

\*Figures quoted from the Health Protection Agency salmonella data set are for isolates confirmed and typed by Laboratory of Enteric Pathogens (LEP).

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### Common gastrointestinal infections, England and Wales, laboratory reports: weeks 36-40/07

Laboratory reports	Number of reports received					Total reports 36-40/07	Cumulative total to	
	36/07	37/07	38/07	39/07	40/07		40/07	40/06
<i>Campylobacter</i>	1330	1059	976	838	306	4509	38346	36808
<i>Escherichia coli</i> O157*	16	30	15	22	8	91	529	704
<i>Salmonella</i> †	328	291	296	227	171	1313	9422	9069
<i>Shigella sonnei</i>	28	18	16	11	–	73	775	499
Rotavirus	23	29	24	17	10	103	12251	12914
Norovirus	41	25	37	27	5	135	3642	3718
<i>Cryptosporidium</i>	136	111	86	80	33	446	2142	2621
<i>Giardia</i>	76	73	62	65	31	307	2120	2230

\*Vero cytotoxin-producing isolates (data from Health Protection Agency's Laboratory of Enteric Pathogens (LEP).

† Data from Health Protection Agency's Laboratory of Enteric Pathogens

Less common gastrointestinal infections, England and Wales: laboratory reports:  
weeks 27-39/07

Laboratory reports	Total reports 27-39/2007	Cumulative total to 39/2007	Cumulative total to 39/2006
Adenovirus*	13	43	48
Astrovirus	4	12	58
Sapovirus	1	2	4
<i>Shigella boydii</i>	20	93	81
<i>Shigella dysenteriae</i>	8	30	32
<i>Shigella flexneri</i>	74	234	253
Plesiomonas	12	34	34
<i>Vibrio</i> spp.	40	71	59
<i>Yersinia</i> spp.	22	43	11
<i>Entamoeba histolytica</i>	16	53	72
<i>Blastocystis hominis</i>	120	403	299
<i>Dientamoeba fragilis</i>	19	96	97

\*includes Adenovirus EM faeces and Adenovirus group F

## Diary

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### A practical guide to reducing MRSA

A one day conference to address the challenges of reducing MRSA infection, on 14 November.

**Venue:** Manchester Conference Centre

**Cost:** £290 to £475 + VAT according to status

Topics will include MRSA: national developments, progress, challenges and targets; lessons from Europe, monitoring and surveillance of MRSA and *Clostridium difficile*; reducing MRSA in primary and community settings and involving, engaging and empowering

Contact Healthcare Events on 020 8541 1399, email: [katie@healthcare-events.co.uk](mailto:katie@healthcare-events.co.uk); website <http://www.healthcare-events.co.uk>.