



Health Protection Report

weekly report

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News

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Reduction of healthcare-associated infections remains priority in the NHS

Reduction of healthcare-associated infections remains one of five national priorities in the recently-published National Health Service operating framework for 2010/11 [1]. The new policy document includes the announcement of two new developments for the control of meticillin-resistant *Staphylococcus aureus* (MRSA) bacteraemia and *Clostridium difficile* infections (CDI) during the 2010/11 period.

Although the NHS has achieved more than the 50% national reduction in MRSA bacteraemia the Department of Health set in November, 2004, some organisations have been less successful than others in achieving reductions. To sustain continuing progress and help all organisations apply a zero tolerance approach to healthcare-associated infections, the National Quality Board has developed a new objective for MRSA bacteraemia for 2010/11 [2]. This will require organisations with the highest rates to make the biggest reductions while also challenging the best performers to sustain their low rates and strive for further reductions where possible.

The Department of Health will also publish a new minimum standard for CDI in the spring of 2010 with a view to their implementation from April 2011 [1].

References

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Pandemic influenza: UK situation at 17 December 2009

The Health Protection Agency's Weekly National Influenza Report of 17 December (week 51) [1] described the UK (and international) situation as follows:

- Pandemic influenza activity is decreasing across the UK;
- In week 50 (ending 13 December), the weekly influenza/influenza-like illness (ILI) consultation rate decreased to below baseline levels in all UK schemes (where set);
- The National Pandemic Flu Service (NPFs) continued to issue antiviral drugs to people in England with the number of assessments and antiviral collections The number of assessments and antiviral collections have decreased over the past week;
- Interpretation of data to produce estimates on the number of new cases continued to be subject to a considerable amount of uncertainty. HPA modelling gave an estimate of 9,000 (range 4,500 – 19,000) new cases in England in week 50. The estimated number of new cases decreased in all regions and age groups;
- An increase in respiratory syncytial virus detections has been observed in recent weeks;
- The main influenza virus circulating in the UK continued to be the pandemic (H1N1) 2009 strain, with few influenza H1 (non-pandemic), H3 and B viruses detected. Twenty-five of 4405 pandemic viruses tested have been confirmed to carry a mutation which confers resistance to the antiviral drug oseltamivir; three are phenotypically resistant to the drug but retain sensitivity to zanamivir;
- The majority of pandemic influenza cases continued to be mild. The cumulative number of deaths reported due to pandemic (H1N1) 2009 in the UK was 296. There was a total of 1082 new patients hospitalised in England with suspected pandemic influenza in the week from 10 to 16 December. The weekly hospitalisation rates have decreased in all age groups;
- The UK pandemic influenza vaccination programme continues for people at high risk of severe disease, health-care workers and healthy children aged between 6 months and 5 years. For further information see the [Department of Health website](#);
- According to the European Centre for Disease Prevention and Control, by 16 December, 11,188 deaths due to pandemic influenza had been reported globally. According to the World Health Organisation (11 December), pandemic influenza activity has passed its peak in North America and in parts of western, northern, and eastern Europe, but is increasing in parts of central and south-eastern Europe. Transmission is still occurring in parts of Asia, is declining in tropical regions and pandemic influenza 2009 virus continues to be detected in Africa.

Reference

1. HPA. [Weekly National Influenza Report: week 51](#) (17 December 2009, PDF 598 KB), HPA website: www.hpa.org.uk/swineflu/surveillance&epidemiology.

Chemicals and Poisons

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Study of carbon monoxide exposure in hospital emergency department attendees

A study of patients attending four hospital emergency departments in England, with a view to identifying evidence of their having been exposed to harmful levels of carbon monoxide, begins gathering data in the coming weeks.

The study, funded by the Department of Health and led by Frimley Park Hospital NHS Foundation Trust, aims to assess the prevalence of harmful exposure to carbon monoxide associated with fossil fuel and wood-burning appliances in the home and workplace, in those attending hospital emergency departments. Current best estimates suggest carbon monoxide (CO) poisoning causes 50 fatalities and 200 casualties annually in England and Wales. However, the true level of harmful exposure is believed to be significantly greater. A recent study showed 6% of gas appliances tested in 600 UK homes were producing dangerously high levels of the gas [1].

There is evidence that both low-level and high-level exposure to CO can produce symptoms often missed by clinicians because they mimic other pathologies. Nine hundred attendees at four hospital emergency departments with symptoms meeting criteria for possible CO exposure will be recruited for the new study and have their carboxyhaemoglobin levels taken in order to establish prevalence among the group. A simultaneous case-control study will be conducted using questionnaires to identify potential risk factors for exposure. All patients will receive CO advice, and those with raised carboxyhaemoglobin levels will be referred to their local Health Protection Unit for follow up.

The HPA published a carbon monoxide (CO) poisoning diagnostic algorithm in March 2009 [2] to help GPs, emergency physicians and other medical professionals diagnose and manage CO poisoning in patients who may be exhibiting symptoms more commonly associated with other ailments.

Coinciding with Carbon Monoxide Awareness Week last month, both the Agency and the Health and Safety Executive issued public reminders of the hazard associated with domestic appliances with links to up-to-date advice on practical prevention measures [3,4].

References

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 2. HPA. Carbon "Diagnosing poisoning: carbon monoxide" (PDF, 74 KB). HPA website: [Home](#) > [Products & Services](#) > [Chemicals & Poisons](#) > [Environment](#) > [Air](#) > [Carbon monoxide poisoning](#) > Carbon monoxide algorithm for medical professionals. Downloadable at: <http://www.hpa.org.uk/HPA/ProductsServices/ChemicalsPoisons/Environment/1236845873212/>.
 3. HPA. "Reducing the risk of carbon monoxide poisoning from household appliances over winter", HPA press release, 16 November 2009, http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1257260472465?p=1231252394302.
 4. "Carbon monoxide awareness week warning to rogue gas fitters", HSE press release, 18 November 2009, <http://www.hse.gov.uk/PRESS/2009/hse9909.htm>.
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Infection reports

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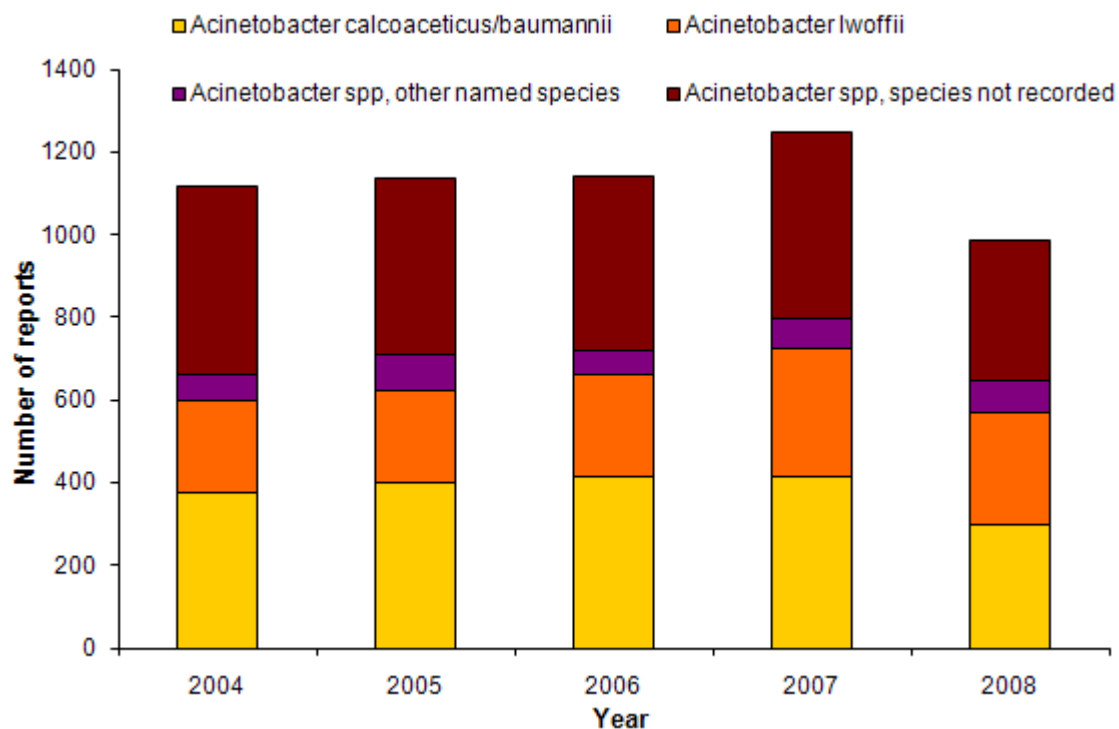
Bacteraemia

- ▶ *Acinetobacter* spp bacteraemia: summary of data for 2004-2008
 - ▶ Uncommon pathogens involved in bacteraemia: England, Wales and Northern Ireland 2003-2008
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Acinetobacter spp bacteraemia: summary of data for 2004-2008

There has been an 11.9% decrease (figure 1) in the total reports of *Acinetobacter* spp. bacteraemia reported via the voluntary surveillance scheme in 2008 (984 reports), compared to 2004 (1117 reports), according to data extracted from the Health Protection Agency's voluntary surveillance database in October 2009. In comparison with data reported in 2007 there was a large decrease (21.0%) in the number of reports of *Acinetobacter* spp. bacteraemia in 2008. This could be attributed to the reduction in the number of reporting laboratories (164 in 2007 to 153 in 2008) rather than decreased incidence.

Figure 1. *Acinetobacter* spp bacteraemia reports: 2004 to 2008*



* Data extracted 27 th October 2009

In 2008, the percentage of *Acinetobacter* isolates identified to species level increased from 59% in 2004 to 66%, the majority of these reports were attributed to *A. calcoaceticus/baumannii* (46%). For *A. calcoaceticus/baumannii*, the only statistically significant changes in susceptibility (measured by chi-square test trend), from 2004 to 2008, were observed for imipenem (5% to 30%; $P < 0.025$), and meropenem (13% to 29%; $P < 0.0001$). There were no statistically significant trends for gentamicin (20%), amikacin (24%), tobramycin (18%), ciprofloxacin (29%), cefotaxime (89%), or ceftazidime (72%).

Uncommon pathogens involved in bacteraemia: England, Wales and Northern Ireland 2003-2008

This analysis (of data presented in tables 1a, 1b and 1c, on the following pages) describes uncommon pathogens reported as causing bacteraemia, which are defined as micro-organisms from species or genera with fewer than 50 reports per year. The data are based on reports received from laboratories in England, Wales and Northern Ireland and identified from blood samples between 2003 and 2008.

The reports were made to HPA as part of the voluntary reporting scheme which provides data on both community-acquired and hospital-acquired bacteraemias. The data in the tables only cover reports based on blood culture, rather than antibody or antigen detection. Due to large numbers of incomplete records it is not possible to examine clinical factors such as use of an intravascular line or a history of recent surgery.

The analysis excludes genera (and one species) for which there are individual HPR reports: *Acinetobacter* spp., *Citrobacter* spp., *Enterococcus* spp., *Enterobacter* spp., *Klebsiella* spp., *Morganella morganii*, *Proteus* spp., *Providencia* spp., *Serratia* spp. and *Streptococcus* spp. [1,2,3].

A total of 2,542 reports of uncommon pathogens among 109 genera were made in 2008. Gram-negative pathogens comprised 59% of all uncommon organisms identified in 2008. Organisms from *Bacteroides* spp., *Clostridium* spp. and *Fusobacterium* spp. were the most frequently reported. A full list of all micro-organisms with fewer than 50 reports per year is given in table 1a.

Discussion

The purpose of this analysis is to describe the unusual bacterial genera not included in the main pathogen groups reported in the HPR. Although these bacteria only account for approximately 3%-4% of total bacteraemia reports between 2003 and 2008, they can be associated with important clinical consequences. For example, some genera, such as *Cardiobacterium* spp., *Eikenella* spp. and *Kingella* spp. are associated with endocarditis [4].

Whilst the bacteraemia reported to this voluntary surveillance system should reflect clinically significant disease, it is sometimes difficult to distinguish true clinical bacteraemias and contamination of cultures can lead to a pseudobacteraemia [5, 6]. For example, *Ralstonia pickettii* is a rare cause of bacteraemia [7], and has been identified as a cause of pseudobacteraemias, suggesting further investigations may be required if *R. pickettii* is identified in blood culture [8]. In 2003 there were 11 reports of bacteraemias due to *R. pickettii* which increased by a small margin in subsequent years. Molecular tools have improved the detection of the more unusual bacteria from blood and such methods have allowed the identification of new agents of severe disease such as endocarditis, however the nature of these methods requires that great care must be taken to avoid reporting contaminants [4, 8, 9].

It is worth noting that the separate HPR reports available for certain genera include data on species that are less "common" ie those with fewer than 50 reports per year, but these are either presented individually or grouped under 'other named' species. This analysis therefore only focuses on uncommon pathogens among genera for which there are no specific HPR reports.

These uncommon organisms have been reported in previous analyses available on the HPA website [10] and feedback is welcome. If confirmation of unusual bacterial pathogens is required, isolates can be sent to the Laboratory of Healthcare Associated Hospital Infection, Specialist and Reference Microbiology Division, Colindale, London.

Acknowledgments

These reports would not be possible without the enduring weekly contributions from microbiology colleagues in laboratories across England, Wales and Northern Ireland, without which there would be no surveillance data. Please send any comments/feedback to hcai.amrdivision@hpa.org.uk. In addition, the support from colleagues within the Health Protection Agency, Centre for Infections, is valued in the preparation of the reports. These contributions are greatly appreciated.

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Table 1: Uncommon organisms associated with bacteraemia, England, Wales and Northern Island: 2003-2008*

Genus**	Species	Number of bacteraemia reports					
		2003	2004	2005	2006	2007	2008
Gram positive bacteria							
<i>Abiotrophia</i> spp		11	20	26	34	28	25
	<i>Abiotrophia adjacens</i>	5	11	12	19	11	8
	<i>Abiotrophia defectiva</i>	3	4	6	11	11	12
<i>Actinomyces</i> spp		6	8	8	8	9	19
	<i>Actinomyces meyeri</i>	1	1				2
	<i>Actinomyces naeslundii</i>	2	3	1	3	4	2
	<i>Actinomyces odontolyticus</i>		2	1		1	4
	<i>Actinomyces pyogenes</i>		1				
	<i>Actinomyces viscosus</i>						1
<i>Aerococcus</i> spp		7	6	14	18	29	35
<i>Arachnia</i> spp						1	
<i>Arcanobacterium</i> spp		7	8	6	10	5	26
	<i>Arcanobacterium haemolyticum</i>	7	8	6	10	5	26
<i>Arthrobacter</i> spp			1	1	2	5	1
<i>Bacillus</i> spp		60	76	36	42	45	63
	<i>Bacillus anthracis</i>			1			
	<i>Bacillus cereus</i>	41	48				39
	<i>Bacillus circulans</i>	2	6				1
	<i>Bacillus firmus</i>	1	2				
	<i>Bacillus licheniformis</i>	6	2	2	5	1	5
	<i>Bacillus pumilus</i>	1	2	1	4	1	
	<i>Bacillus sphaericus</i>	1	2		1	1	
	<i>Bacillus subtilis</i>			3	1	2	1
<i>Bifidobacterium</i> spp		4	3	2	3	7	7
<i>Brevibacterium</i> spp		14	11	14	14	15	16
<i>Clostridium</i> spp		83	110	120	127	129	145
	<i>Clostridium beijerinckii</i>		2	1	2		1
	<i>Clostridium bifermentans</i> (<i>Clostridium Sordelli</i>)	5	7	6	5	5	14
	<i>Clostridium botulinum</i>	1					
	<i>Clostridium butyricum</i>	4	10	2	4	1	2
	<i>Clostridium cadaveris</i>	9	9	7	7	12	12
	<i>Clostridium clostridioforme</i>	5	12	10	7	10	6
	<i>Clostridium difficile</i>		17	11	15	9	10
	<i>Clostridium fallax</i>	4	1	5	4	8	1
	<i>Clostridium glycolicum</i>	2	1	1	1	1	
	<i>Clostridium histolyticum</i>		3		2		3
	<i>Clostridium innocuum</i>	4	1	6	7	7	13
	<i>Clostridium limosum</i>				1	1	1
	<i>Clostridium novyi</i>		1			1	1
	<i>Clostridium paraputrificum</i>	13	12	21	14	14	15
	<i>Clostridium putrificum</i>					2	
	<i>Clostridium ramosum</i>	16	12	25	25	27	33
	<i>Clostridium sporogenes</i>	2	4	5	7	3	5
	<i>Clostridium subterminale</i>	2	1	1	1	2	1
	<i>Clostridium tertium</i>	7	9	14	18	11	17
	<i>Clostridium tyrobutyricum</i>			1	1		1
<i>Corynebacterium</i> spp		69	93	90	82	96	100
	<i>Corynebacterium amycolatum</i>	1		2			2
	<i>Corynebacterium aquaticum</i>		4	7	4		
	<i>Corynebacterium bovis</i>	1	1				
	<i>Corynebacterium diphtheriae</i> Gravis				1		
	<i>Corynebacterium diphtheriae</i> Untyped		1			1	
	<i>Corynebacterium imitans</i>						1
	<i>Corynebacterium jeikeium</i>	28	23	30	31	17	33
	<i>Corynebacterium minutissimum</i>	1	1	1			
	<i>Corynebacterium pseudodiphtheriticum</i> (<i>C. Hoffmannii</i>)		2	2	1	3	3
	<i>Corynebacterium pseudotuberculosis</i>				1		
	<i>Corynebacterium striatum</i>	21	29	32	25	42	27
	<i>Corynebacterium urealyticum</i>	2	2	1	4	1	3
	<i>Corynebacterium xerosis</i>		1	1			

Genus**	Species	Number of bacteraemia reports					
		2003	2004	2005	2006	2007	2008
Dermabacter spp		2	2	4	1	4	8
	<i>Dermabacter hominis</i>	2	2	4	1	4	8
Erysipelothrix spp		2		2	1	4	4
	<i>Erysipelothrix rhusiopathiae (insidiosa)</i>	2		2	1	4	4
Eubacterium spp		13	28	12	24	19	23
	<i>Eubacterium lentum</i>	7	16	5	15	9	16
Faenia spp							1
	<i>Faenia rectivergula</i>						1
Gemella spp		80	92	98	52	71	56
	<i>Gemella haemolysans</i>	22	27	33	28	45	35
	<i>Gemella morbillorum</i>	39	48	43			
Globicatella spp					2	3	
	<i>Globicatella sanguis</i>				2	3	
Kurthia spp							1
Lactobacillus spp		45	48	62	47	22	51
	<i>Lactobacillus acidophilus</i>		2	2	3	2	1
	<i>Lactobacillus brevis</i>				1		
	<i>Lactobacillus casei</i>		1		1		
	<i>Lactobacillus catenaformis</i>					1	
	<i>Lactobacillus fermentum</i>			1	1	1	
	<i>Lactobacillus jensenii</i>						1
	<i>Lactobacillus plantarum</i>				2		
	<i>Lactobacillus rhamnosus</i>	5	2	5	2	7	5
Lactococcus spp		32	46	38	54	63	62
	<i>Lactococcus cremoris</i>	12	19	9	14	13	6
	<i>Lactococcus lactis</i>	13	19	25	31	39	44
Leuconostoc spp		29	35	31	43	39	37
Listeria spp		21	23	22	8	13	18
	<i>Listeria innocua</i>	1	1	2		3	1
Micrococcus spp		1	4	9	31	22	24
	<i>Micrococcus luteus (Sarcina)</i>		2	6	30	19	22
Mobiluncus spp		1		1			1
Mycobacterium spp		58	99	107	110	88	107
	<i>Mycobacterium abscessus</i>	1		6			2
	<i>Mycobacterium africanum</i>					1	
	<i>Mycobacterium avium-intracellulare</i> Group (Mai)	22	32	33	20	19	20
	<i>Mycobacterium bovis</i> (Non-BCG Strain)			1		1	
	<i>Mycobacterium chelonae</i>	7	6	21	9	9	19
	<i>Mycobacterium fortuitum</i>	1	7	2	7	2	9
	<i>Mycobacterium gordonae</i>		1			1	
	<i>Mycobacterium kansasii</i>			1	2		1
	<i>Mycobacterium malmoense</i>				1	1	1
	<i>Mycobacterium peregrinum</i>		1		2	1	1
	<i>Mycobacterium scrofulaceum</i>						1
	<i>Mycobacterium tuberculosis</i>	14	23	22	41	29	27
	<i>Mycobacterium xenopi</i>				3		
Nocardia spp		3	1	6	4	2	7
Oerskovia spp			1	3		1	
Pediococcus spp		4	3	4	3	5	6
Peptococcus spp		17	23	26	12	17	23
Peptostreptococcus spp		56	68	77	81	80	79
	<i>Peptostreptococcus asaccharolyticus</i>	26	20	32	18	35	36
	<i>Peptostreptococcus prevotti</i>	7	11	12	24	16	10
	<i>Peptostreptococcus productus</i>	1	1			1	
Propionibacterium spp		13		50	36	48	47
	<i>Propionibacterium acnes</i>	13		48	36	47	45
	<i>Propionibacterium propionica</i>			2		1	2
Rhodococcus spp		9	14	17	16	20	18
	<i>Rhodococcus equi (Corynebacterium Equi)</i>		2				2
Rothia spp		2	3	7	12	13	8
	<i>Rothia dentocariosia</i>	2	3	3	6	5	1
Staphylococcus spp		5	6	8	4	3	8
	<i>Staphylococcus saccharolyticus</i>	5	6	8	4	3	8
Stomatococcus spp		8	9	4	7	4	9
	<i>Stomatococcus mucilaginosus</i>	8	9	4	7	3	7
Streptomyces spp						1	
Total - Gram positive		662	841	905	888	911	1035

Genus**	Species	Number of bacteraemia reports					
		2003	2004	2005	2006	2007	2008
Gram negative bacteria							
Achromobacter spp		9	19	17	35	62	56
	Achromobacter other Named	1	6	8	18	37	32
	Achromobacter sp	8	13	9	17	25	24
Actinobacillus spp		2	5	1	1	1	3
	Actinobacillus ureae	1			1		
Aeromonas spp		61	28	43	32	55	47
	Aeromonas caviae	6	1	4	2	9	6
	Aeromonas salmonicida	1	1	2		6	1
	Aeromonas sobria	12	8	14	6	5	11
	Aeromonas veronii	1		1	2	2	
Agrobacterium spp		49	1	54	46	40	30
	Agrobacterium radiobacter (Agrobacterium tumefaciens)	44		49	42	35	29
Alcaligenes spp		110	106	96	64	52	39
	Alcaligenes faecalis	16	13	12	16	24	14
	Alcaligenes piechaudii						1
	Alcaligenes xylosoxidans	46	43	40	23	16	12
Anaerobiospirillum spp		4	6	13	4	6	9
Arcobacter spp						1	1
	Arcobacter butzleri					1	
Bacteroides spp		135	156	153	132	168	150
	Bacteroides capillosus	24	37	32	21	39	47
	Bacteroides distasonis	7	5	6	9	13	8
	Bacteroides ovatus	12	16	15	16	16	20
	Bacteroides splanchnicus			1		3	1
	Bacteroides thetaiotaomicron	34	38	47	32		
	Bacteroides uniformis	17	10	17	7	23	10
	Bacteroides ureolyticus (Bacteroides corrodens)	8	16	15	10	18	11
	Bacteroides variabilis				1	1	
	Bacteroides vulgatus	9	15	6	11	20	9
Bergeyella spp					1		
	Bergeyella zoohelcum				1		
Bordetella spp		1	2	6	6	17	48
	Bordetella bronchiseptica			5	3	6	2
	Bordetella pertussis	1	1		2	11	43
Borrelia spp		1	3	6	1	19	25
	Borrelia burgdorferi	1	3	5	1	17	23
Branhamella spp		7	7	5	3	3	
Brevundimonas spp		23	31	32	29	47	44
	Brevundimonas diminuta	6	6	10	8	14	10
	Brevundimonas vesicularis	17	25	22	20	29	27
Brucella spp		10	22	3	11	7	3
	Brucella abortus	3	7		1		
	Brucella melitensis	1	3	3	4	5	3
Burkholderia spp		1	47	44	34	45	29
	Burkholderia cenocepacia						1
	Burkholderia cepacia		47	43	31	45	27
	Burkholderia mallei			1			
	Burkholderia pseudomallei	1			3		1
Buttiauxella spp			1	1		1	1
	Buttiauxella agrestis		1	1		1	
Campylobacter spp		62	75	29	81	51	83
	Campylobacter coli	2	3	2	5	11	3
	Campylobacter fetus	4	5	1	5	4	7
	Campylobacter jejuni	11	23	24	26	35	27
	Campylobacter lari						1
	Campylobacter upsaliensis	1		1			
Capnocytophaga spp		1					
	Capnocytophaga ochracea	1					
Capnocytophaga spp		10	5	13	9	13	21
Cardiobacterium spp		1	3	1	1	3	6
	Cardiobacterium hominis	1	3	1	1	1	4

Genus**	Species	Number of bacteraemia reports					
		2003	2004	2005	2006	2007	2008
Cedecea spp		1	2	4	2	2	
	Cdc group II (Typed)		1	3			
	<i>Cedecea davisae</i>	1			1		
	<i>Cedecea lapagei</i>		1				
	<i>Cedecea neteri</i>				1	1	
Chromobacterium spp		4	2	2	2	1	4
	<i>Chromobacterium violaceum</i>	2	2		2	1	3
Chryseobacterium spp		76	56	76	70	58	35
	<i>Chryseobacterium gleum</i>	1	1				
	<i>Chryseobacterium indologenes</i>	24	21	22	34	30	16
	<i>Chryseobacterium meningosepticum</i>	7	4	11	9	16	3
	<i>Chryseomonas luteola</i>	43	30	42	24	11	15
Comamonas spp		30	30	32	32	16	25
	<i>Comamonas acidovorans</i>	24	23	16	18	6	15
	<i>Comamonas testosteroni</i>	3	2	6	6	5	6
Dialister spp						1	2
	<i>Dialister pneumosintes</i>					1	2
Edwardsiella spp		2		1	3	1	2
	<i>Edwardsiella tarda</i>	1		1		1	1
Eikenella spp		8	7	12	7	9	4
	<i>Eikenella corrodens</i>	7	7	8	7	8	3
Empedobacter spp		2		1		1	3
	<i>Empedobacter brevis</i>	2		1		1	3
Erwinia spp				1	2		
Escherichia spp		26	13	17	20	13	11
	<i>Escherichia alkalescens</i> (Dispar)	1		1	1		
	<i>Escherichia fergusonii</i>	5	3	6	5	4	
	<i>Escherichia hermannii</i>	7	3		4	3	4
	<i>Escherichia vulneris</i>	1	3	3	6	1	1
Ewingella spp			1		1		
	<i>Ewingella americana</i>		1		1		
Flavimonas spp		41	35	48	31	19	12
	<i>Flavimonas oryzihabitans</i>	41	35	48	31	19	12
Flavobacterium spp		14	16	10	4	4	10
Francisella spp		2					
Fusobacterium spp		89	106	116	117	128	132
	<i>Fusobacterium mortiferum</i>	1		3		1	1
	<i>Fusobacterium naviforme</i>		1				
	<i>Fusobacterium necrophorum</i> (<i>Sphaerophus necrophorum</i>)	35	38	40	40	49	47
	<i>Fusobacterium nucleatum</i>	24	31	26	33	29	39
	<i>Fusobacterium varium</i>	1	2	2	2	3	1
Gardnerella spp		4	2	3	2	3	6
	<i>Gardnerella vaginalis</i>	3	2	3	2	3	4
Haemophilus spp		81	79	30	81	83	85
	<i>Haemophilus actinomycetemcomitans</i>	4	1	1	6	6	4
	<i>Haemophilus aphrophilus</i>	2	4	11	6	6	7
	<i>Haemophilus parahaemolyticus</i>	1	2	1		2	1
	<i>Haemophilus parainfluenzae</i>	49	46		44	48	50
	<i>Haemophilus paraphrophilus</i>		2	1		1	3
	<i>Haemophilus segnis</i>			2	1		
Hafnia spp		33	33	32	31	40	43
	<i>Hafnia alvei</i>	31	33	31	31	38	42
Helicobacter spp		2	9	7		10	33
	<i>Helicobacter cinaedi</i>		1			1	
	<i>Helicobacter pylori</i>	2	8	7		9	33
Kingella spp		5	2	7	2	6	5
	<i>Kingella denitrificans</i>		1		1		
	<i>Kingella kingae</i>	4	1	6	1	4	4
Kluyvera spp		23	26	20	24	37	18
	<i>Kluyvera ascorbata</i>		2		1		2
	<i>Kluyvera cryocrescens</i>		1				
Leclercia spp		2	7	3	2	6	6
	<i>Leclercia adecarboxylata</i>	2	7	3	2	6	6
Legionella spp			2	2	1	4	6
Leptospira spp			4	2	1	6	5
	<i>Leptospira hardjo</i>		1				

Genus**	Species	Number of bacteraemia reports					
		2003	2004	2005	2006	2007	2008
Leptotrichia spp				2	2		1
	<i>Leptotrichia buccalis</i>			1	1		
Moraxella spp		42	23	48	56	41	43
	<i>Moraxella atlantae</i>	4	2	4	1	1	2
	<i>Moraxella lacunata</i>			1	1	2	4
	<i>Moraxella liquefaciens</i>						1
	<i>Moraxella nonliquefaciens</i>	5	2	3	1		2
	<i>Moraxella osloensis</i>	12	8	15	17	6	12
	<i>Moraxella phenylpyruvica</i>	1		2			
Myroides spp				1		5	3
	<i>Myroides odoratus</i>			1		5	3
Neisseria spp		86	56	73	71	42	70
	<i>Neisseria gonorrhoeae</i>	32	16	20	13	27	5
	<i>Neisseria lactamica</i>	1	1			1	1
	<i>Neisseria mucosa</i>	3	1		1		1
	<i>Neisseria pharyngis</i>	1					
	<i>Neisseria polysacchareae</i>			3	2	2	1
	<i>Neisseria sicca</i>	5	1	2	3	7	6
	<i>Neisseria subflava</i>	2	1		2	1	
Ochrobactrum spp		50	3	2	2	4	42
	<i>Ochrobactrum anthropi</i>	49					41
Oligella spp		1	2	2	3	3	3
	<i>Oligella ureolytica</i>	1	1	1	2	1	3
	<i>Oligella urethralis</i>		1			2	
Pantoea spp		25	21	19	15	19	11
	<i>Pantoea agglomerans (Erwinia herbicola)</i>	25	21	19	15	19	11
Pasteurella spp		66	74	19	22	63	55
	<i>Pasteurella aerogenes</i>		1				
	<i>Pasteurella haemolytica</i>	3	6	5	3	1	1
	<i>Pasteurella multocida</i>	49	47			50	41
	<i>Pasteurella pneumotropica</i>	2	4	5	10	2	2
Plesiomonas spp					2	1	1
	<i>Plesiomonas shigelloides</i>				2	1	1
Porphyromonas spp		4	4	3	5		1
	<i>Porphyromonas asaccharolytica</i>	3	3	2	3		
Prevotella spp		61	82	73	92	84	98
	<i>Prevotella bivia</i>	2	6	4	4	3	6
	<i>Prevotella buccae</i>	4	5	6	4	5	5
	<i>Prevotella denticola</i>		1		2		2
	<i>Prevotella disiens</i>	2	1		1	3	
	<i>Prevotella intermedia</i>	2	2		1	5	4
	<i>Prevotella loescheii</i>	6	10	8	17	11	12
	<i>Prevotella melaninogenica</i>	13	14	6	11	12	10
	<i>Prevotella oralis</i>	10	25	14	16	21	22
Pseudomonas spp		83	29	27	39	7	11
	<i>Pseudomonas alcaligenes</i>	7	9	6	3	7	11
	<i>Pseudomonas stutzeri</i>	48					
Rahnella spp		1	3	9	3	4	1
Ralstonia spp		11	9	15	14	14	15
	<i>Ralstonia pickettii</i>	11	9	15	14	14	15
Raoultella spp						45	28
	<i>Raoultella terrigena</i>					45	28
Roseomonas spp		1		5	5	6	4
	<i>Roseomonas gilardii</i>			3	1	1	1

Genus**	Species	Number of bacteraemia reports					
		2003	2004	2005	2006	2007	2008
Salmonella spp		101	13	0	0	0	6
	<i>Salmonella agona</i>	1					
	<i>Salmonella anatum</i>	1					
	<i>Salmonella arechavaleta</i>	1					
	<i>Salmonella bareilly</i>	1					
	<i>Salmonella bovis-morbificans</i>	1					
	<i>Salmonella braenderup</i>	2					
	<i>Salmonella bredeney</i>		1				
	<i>Salmonella chester</i>	1					
	<i>Salmonella cholerae-suis</i>	1					
	<i>Salmonella colindale</i>	1					
	<i>Salmonella derby</i>		1				
	<i>Salmonella dublin</i>	9	1				
	<i>Salmonella durham</i>	1					
	<i>Salmonella eastbourne</i>	1					
	<i>Salmonella enteritidis</i>		1				
	<i>Salmonella hadar</i>	2					
	<i>Salmonella heidelberg</i>	1					
	<i>Salmonella infantis</i>	2					
	<i>Salmonella java</i>	2					
	<i>Salmonella kottbus</i>	1					
	<i>Salmonella lille</i>	1					
	<i>Salmonella montevideo</i>	1					
	<i>Salmonella newport</i>	2					
	<i>Salmonella oranienburg</i>	3					
	<i>Salmonella panama</i>	2	1				
	<i>Salmonella paratyphi A</i>		2				4
	<i>Salmonella paratyphi B</i>	3					
	<i>Salmonella paratyphi C</i>	1					
	<i>Salmonella poona</i>	1					
	<i>Salmonella richmond</i>	1					
	<i>Salmonella san-diego</i>	1	1				
	<i>Salmonella schwarzengrund</i>	1					
	<i>Salmonella stanley</i>	2					
	<i>Salmonella stanleyville</i>	1					
	<i>Salmonella tel-el-kebir</i>	2					
	<i>Salmonella thompson</i>	1					
	<i>Salmonella typhi</i>		4				2
	<i>Salmonella typhimurium</i>	34	1				
	<i>Salmonella unnamed</i>	6					
	<i>Salmonella virchow</i>	7					
	<i>Salmonella weltevreden</i>	1					
	<i>Salmonella zanzibar</i>	1					
Shewanella spp		7	4	3	7	4	6
	<i>Shewanella putrefaciens (Pseudomonas putrefaciens)</i>	7	4	3	6	4	6
Shigella spp		1	3	6	4	6	9
	<i>Shigella boydii</i>			1	1	1	
	<i>Shigella flexneri</i>		1	3	3	3	7
	<i>Shigella sonnei</i>	1	2	2		1	2
Sphingobacterium spp		4	1	12	1	8	9
	<i>Sphingobacterium multivorum</i>	3		4	1	2	3
	<i>Sphingobacterium spiritivorum</i>	1	1	6		2	1
	<i>Sphingobacterium thalophilum</i>					1	
Sphingomonas spp		38	43	7	5	1	4
	<i>Sphingomonas paucimobilis</i>	35	38				
Stenotrophomonas spp					3	5	2
Streptobacillus spp		1	4	1			1
	<i>Streptobacillus moniliformis</i>	1		1			

Genus**	Species	Number of bacteraemia reports					
		2003	2004	2005	2006	2007	2008
Suttonella spp				1			
	<i>Suttonella indologenes</i>			1			
Veillonella spp		15	21	27	19	39	28
Vibrio spp		6		2		4	
	<i>Vibrio alginolyticus</i>	2					
	<i>Vibrio cholerae</i>	1					
	<i>Vibrio fluvialis</i>			1		2	
	<i>Vibrio metschnikovii</i>	1					
	<i>Vibrio parahaemolyticus</i>	1		1			
	<i>Vibrio vulnificus</i>					2	
Weeksella spp		2	2	2	2	2	1
	<i>Weeksella virosa</i>	2	2	2	2	2	1
Wolinella spp				1			1
Yersinia spp		12	13	12	17	7	11
	<i>Yersinia aldovae</i>	1					
	<i>Yersinia enterocolitica</i>	8	12	8	15	6	9
	<i>Yersinia frederiksenii</i>	1	1				
	<i>Yersinia pseudotuberculosis</i>	1		3	2		1
Total - Gram negative		1550	1359	1315	1314	1453	1507

Table 2: Uncommon organisms - excluding genera for which specific HPR reports are available*

	2003	2004	2005	2006	2007	2008
Total uncommon organisms	2,212	2,200	2,220	2,202	2,364	2,542
All organisms associated with bacteraemia	53,931	55,608	58,727	64,065	73,378	68,593
% of total bacteraemias associated with uncommon pathogens	4.1%	4.0%	3.8%	3.4%	3.2%	3.7%

Table 3: Uncommon organisms - all genera***

	2003	2004	2005	2006	2007	2008
Total uncommon organisms (all genera)	3,040	3,007	3,045	3,024	3,242	3,522
All organisms associated with bacteraemia (all genera)	85,637	87,616	91,771	98,599	109,319	103,238
% of total bacteraemias associated with uncommon pathogens (all genera)	3.5%	3.4%	3.3%	3.1%	3.0%	3.4%

* data extracted on December 2009; excludes specific genera for which HPR reports are available separately:

Acinetobacter spp, *Citrobacter* spp, *Enterococcus* spp, *Enterobacter* spp, *Klebsiella* spp, *Morganella morganii*, *Proteus* spp, *Providencia* spp, *Serratia* spp, *Streptococcus* spp

** genus includes isolates of organisms not identified at species level

***i.e.uncommon species for all genera including: *Acinetobacter* spp, *Citrobacter* spp, *Enterococcus* spp, *Enterobacter* spp, *Klebsiella* spp, *Morganella morganii*, *Proteus* spp, *Providencia* spp, *Serratia* spp, *Streptococcus* spp