



Infection report

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Uncommon pathogens involved in bacteraemia in England, Wales and Northern Ireland: 2011-2015

The analysis presented in this report is based on data extracted from the Public Health England (PHE) voluntary surveillance database, Second Generation Surveillance System, on 28 September 2016 for the period between 1 January 2011 and 31 December 2015. Data from Wales and Northern Ireland were extracted separately from DataStore on 20 July 2016 and CoSurv on 28 October 2016 respectively. This report describes uncommon pathogens causing clinically significant infections (bacterial genera with fewer than 50 reports in 2015) identified from blood cultures. Data in this report may differ slightly from data in earlier publications due to inclusion of late reports and reclassification of organisms.

One hundred and twenty uncommon genera causing bloodstream infection episodes were reported for 2011 to 2015, 61.7% of which were Gram-negative bacteria. Of the 1,089 bloodstream infection episodes caused by uncommon pathogens reported in 2015, 53.6% were due to Gram-negative bacteria (see table). By definition of inclusion in this analysis, small numbers of reports preclude robust or meaningful analysis of trends, but of note are decreases between 2011 and 2015 in reports of *Alcaligenes*, *Kluyvera* and *Sphingobacterium* Gram-negative species. In contrast, a moderate increase was noted for the following Gram-positive genera: *Actinobaculum*, *Anaerococcus*, *Arthrobacter*, *Atopobium*, *Facklamia*, *Microbacterium*, *Ruminococcus*, *Slackia*; and Gram-negative *Anaerobiospirillum*, *Comamonas*, *Delftia*, *Eikenella*, *Elizabethkingia*, *Leclercia*, *Parabacteroides*, *Paracoccus*, and *Sphingomonas* species. Increases to higher levels of identification were observed for Gram-positive *Abiotrophia*, *Dermabacter*, *Paenibacillus*, *Parvimonas* and Gram-negative *Brevundimonas*, *Capnocytophaga*, *Chryseobacterium*, *Gardnerella* species.

Discussion

The purpose of this review is to describe unusual bacterial genera not included in the monthly bacteraemia reports published in the Health Protection Report. Examining trends in these pathogens can provide a means of identifying emerging or re-emerging infections [1], providing opportunities for preventative measures or education of frontline clinical staff.

There has been a general improvement in the identification of cultured organisms by increased use of automated biochemical identification systems, molecular techniques such as 16S ribosomal RNA, and the introduction of MALDI-TOF mass spectrometry in some laboratories. This has increased the accuracy of species identified, and we now have a better understanding of the relative importance of these hitherto difficult to identify species causing significant disease. It should be borne in mind that findings by MALDI-TOF reflect organisms that are present in the database, therefore identification is expected to improve with expansion of the database.

Although these bacteria only account for a very low proportion of total bloodstream infections, they can be associated with important clinical consequences, such as endocarditis [2]. Infections imported from endemic regions, such as *Brucella* species [3] although rarely diagnosed in this country can cause severe illness in those affected. Others are associated with specific exposures such as non-cholera *Vibrio* due to salt water exposure or infections due to *Erysipelothrix rhusiopathiae* in workers in contact with animals or handling animal products [4]. Reports of bacteraemia due to *Psychrobacter* were noted for the first time in 2012 and *Psychrobacter* has been reported to cause bloodstream infection in patients with underlying comorbidities such as liver cirrhosis [5]. Certain pathogens which primarily cause self-limiting gastrointestinal infections like *Shigella* spp, *Yersinia enterocolitica*, *Yersinia pseudotuberculosis* can on rare occasions cause bacteraemia in specific hosts e.g. immunosuppressed patients or those with iron overload [6,7,8,9].

This year has seen a continuing increase in *Chryseobacterium* species largely due to increases in *Chryseobacterium indologenes*, associated with underlying comorbidities or indwelling catheters. Increasing resistance to certain antimicrobial agents may be contributing to the observed increase [10].

Increases in bacteraemia due to *Gardnerella* species are mainly due to *Gardnerella vaginalis*. Bacteraemia associated with *Gardnerella vaginalis* are rare and mainly seen in gynaecological or obstetric patients [11], although can also occur in men [12].

While *Dermabacter hominis* is commonly found on human skin, it has been isolated from a range of clinical specimens, such as blood cultures, abscesses, as well as wound and eye infections [13].

Both *Parvimonas micra* and *Abiotrophia defectiva* can be isolated from the oral cavity and bacteraemia may follow dental treatment, potentially leading to endocarditis [14,15].

A number of genera were reported in 2015 that were not seen in the previous 4 years: *Cellulosimicrobium*, *Dolosicoccus*, *Dolosigranulum*, *Exiguobacterium*, *Filifactor*, *Kytococcus*, *Tsukamurella*, *Turicella*, *Virgibacillus*, *Acetobacter*, *Acidovorax*, *Azorhizobium*, *Bergeyella*, *Cronobacter*, *Cupriavidus* and *Haematobacter*. Some of these genera have previously been associated with bacteraemia in patients, often catheter-related or associated with co-morbidities [16,17,18].

Whilst the bloodstream infections reported to this voluntary surveillance system should, according to national reporting guidelines, reflect clinically significant disease, some of these reports may reflect skin colonisers or contaminants due to difficulties in blood culture sampling or contamination in laboratory processing [19,20].

If confirmation of unusual bacterial pathogens is required, isolates can be sent to the relevant laboratory within the Bacteriology Reference Department, Reference Microbiology Services, Colindale, Public Health England.

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Uncommon pathogens associated with bacteraemia in England, Wales and Northern Ireland: 2011-2015*

Genus**	Species	Number of bacteraemia reports				
		2011	2012	2013	2014	2015
Gram positive bacteria						
<i>Abiotrophia</i> spp		18	24	19	28	39
	<i>Abiotrophia defectiva</i>	9	18	14	24	32
	<i>Abiotrophia</i> other named	2	2	1	1	2
	<i>Abiotrophia</i> spp	7	4	4	3	5
<i>Actinobaculum</i> spp		1	3	2	3	21
	<i>Actinobaculum schaalii</i>	1	2	2	2	17
	<i>Actinobaculum</i> spp	0	1	0	1	4
<i>Alloiococcus</i> spp		0	1	0	2	3
	<i>Alloiococcus otitis</i>	0	1	0	2	3
<i>Anaerococcus</i> spp		16	8	7	14	15
	<i>Anaerococcus murdochii</i>	0	0	0	0	1
	<i>Anaerococcus octavius</i>	0	0	0	0	2
	<i>Anaerococcus prevotii</i>	16	8	4	6	2
	<i>Anaerococcus</i> spp	0	0	2	8	8
	<i>Anaerococcus tetradius</i>	0	0	1	0	2
<i>Arcanobacterium</i> spp		11	11	15	26	21
	<i>Arcanobacterium haemolyticum</i>	10	11	15	26	20
	<i>Arcanobacterium</i> spp	1	0	0	0	1
<i>Arthrobacter</i> spp		4	9	5	12	16
	<i>Arthrobacter</i> spp	4	9	5	12	16
<i>Atopobium</i> spp		1	0	1	3	13
	<i>Atopobium parvulum</i>	0	0	0	1	2
	<i>Atopobium rimae</i>	0	0	1	1	2
	<i>Atopobium</i> spp	0	0	0	0	4
	<i>Atopobium vaginae</i>	1	0	0	1	5
<i>Brevibacillus</i> spp		0	0	0	4	2
	<i>Brevibacillus borstelensis</i>	0	0	0	4	1
	<i>Brevibacillus</i> spp	0	0	0	0	1
<i>Cellulomonas</i> spp		0	1	0	1	3
	<i>Cellulomonas</i> spp	0	1	0	1	3
<i>Cellulosimicrobium</i> spp		0	0	0	0	2
	<i>Cellulosimicrobium cellulans</i>	0	0	0	0	2
<i>Collinsella</i> spp		3	3	5	10	7
	<i>Collinsella aerofaciens</i>	3	3	5	10	7
<i>Dermabacter</i> spp		2	5	18	25	40
	<i>Dermabacter hominis</i>	2	5	18	25	40
<i>Dermacoccus</i> spp		0	0	0	1	5
	<i>Dermacoccus</i> spp	0	0	0	1	5
<i>Dolosicoccus</i> spp		0	0	0	0	1
	<i>Dolosicoccus paucivorans</i>	0	0	0	0	1

<i>Dolosigranulum</i> spp		0	0	0	0	1
	<i>Dolosigranulum pigrum</i>	0	0	0	0	1
<i>Eggerthella</i> spp		2	2	5	9	10
	<i>Eggerthella lenta</i>	2	2	4	8	5
	<i>Eggerthella</i> spp	0	0	1	1	5
<i>Erysipelothrix</i> spp		5	11	3	3	9
	<i>Erysipelothrix other named</i>	0	0	1	0	0
	<i>Erysipelothrix rhusiopathiae</i> (<i>insidiosa</i>)	4	10	2	2	8
	<i>Erysipelothrix</i> spp	1	1	0	1	1
<i>Eubacterium</i> spp		6	13	5	5	5
	<i>Eubacterium limosum</i>	0	0	1	0	0
	<i>Eubacterium</i> other named	5	9	4	4	1
	<i>Eubacterium</i> spp	1	4	0	1	3
	<i>Eubacterium tenue</i>	0	0	0	0	1
<i>Exiguobacterium</i> spp		0	0	0	0	3
	<i>Exiguobacterium</i> spp	0	0	0	0	3
<i>Facklamia</i> spp		1	0	2	2	20
	<i>Facklamia hominis</i>	0	0	1	1	15
	<i>Facklamia ignava</i>	1	0	0	0	0
	<i>Facklamia languida</i>	0	0	1	0	2
	<i>Facklamia</i> spp	0	0	0	1	3
<i>Filifactor</i> spp		0	0	0	0	1
	<i>Filifactor alocis</i>	0	0	0	0	1
<i>Finegoldia</i> spp		2	0	1	5	5
	<i>Finegoldia magna</i>	2	0	1	0	2
	<i>Finegoldia</i> spp	0	0	0	5	3
<i>Globicatella</i> spp		3	1	4	5	7
	<i>Globicatella sanguis</i>	3	1	3	4	3
	<i>Globicatella</i> spp	0	0	0	0	1
	<i>Globicatella sulfidifaciens</i>	0	0	1	1	3
<i>Gordonia</i> spp		0	1	3	6	8
	<i>Gordonia aichiensis</i>	0	0	0	0	1
	<i>Gordonia bronchialis</i>	0	1	1	2	3
	<i>Gordonia polyisoprenivorans</i>	0	0	0	1	0
	<i>Gordonia</i> spp	0	0	2	3	3
	<i>Gordonia sputi</i>	0	0	0	0	1
<i>Helcococcus</i> spp		0	0	2	0	6
	<i>Helcococcus kunzii</i>	0	0	2	0	3
	<i>Helcococcus</i> spp	0	0	0	0	1
	<i>Helcococcus sueciensis</i>	0	0	0	0	2
<i>Janibacter</i> spp		0	1	0	1	3
	<i>Janibacter anophelis</i>	0	1	0	0	0
	<i>Janibacter</i> spp	0	0	0	1	2
	<i>Janibacter terrae</i>	0	0	0	0	1
<i>Kytococcus</i> spp		0	0	0	0	6
	<i>Kytococcus</i> spp	0	0	0	0	6

<i>Leuconostoc</i> spp		39	43	43	25	38
	<i>Leuconostoc pseudomesenteroides</i>	0	0	0	0	1
	<i>Leuconostoc</i> spp	39	43	43	25	37
<i>Microbacterium</i> spp		1	0	4	6	23
	<i>Microbacterium imperiale</i>	0	0	1	0	0
	<i>Microbacterium lacticum</i>	0	0	0	0	1
	<i>Microbacterium luteolum</i>	0	0	1	1	4
	<i>Microbacterium</i> spp	1	0	2	5	18
<i>Mobiluncus</i> spp		1	0	1	0	0
	<i>Mobiluncus</i> spp	1	0	1	0	0
<i>Nocardia</i> spp		3	1	4	5	8
	<i>Nocardia asteroides</i>	0	0	0	0	1
	<i>Nocardia farcinica</i>	0	0	0	1	1
	<i>Nocardia</i> other named	2	0	2	1	3
	<i>Nocardia</i> spp	1	1	2	3	3
<i>Oerskovia</i> spp		0	1	0	0	1
	<i>Oerskovia</i> spp	0	1	0	0	0
	<i>Oerskovia turbata</i>	0	0	0	0	1
<i>Paenibacillus</i> spp		0	1	1	7	43
	<i>Paenibacillus durus</i>	0	0	0	0	1
	<i>Paenibacillus glucanolyticus</i>	0	0	0	0	2
	<i>Paenibacillus macerans</i>	0	0	0	0	1
	<i>Paenibacillus motobuensis</i>	0	0	0	0	1
	<i>Paenibacillus polymyxa</i>	0	0	0	0	1
	<i>Paenibacillus</i> spp	0	1	1	7	37
<i>Parvimonas</i> spp		1	8	7	12	39
	<i>Parvimonas micra</i>	1	8	7	12	39
<i>Pediococcus</i> spp		2	3	3	11	9
	<i>Pediococcus acidilactici</i>	0	0	0	0	2
	<i>Pediococcus</i> other named	2	2	1	4	0
	<i>Pediococcus pentosaceus</i>	0	0	0	0	2
	<i>Pediococcus</i> spp	0	1	2	7	5
<i>Peptococcus</i> spp		13	16	6	18	10
	<i>Peptococcus</i> named	3	2	1	7	5
	<i>Peptococcus</i> spp	10	14	5	11	5
<i>Rhodococcus</i> spp		13	12	11	18	13
	<i>Rhodococcus equi</i>	1	2	1	1	0
	<i>Rhodococcus</i> other named	1	0	1	1	0
	<i>Rhodococcus</i> spp	11	10	9	16	13
<i>Ruminococcus</i> spp		1	0	5	4	27
	<i>Ruminococcus gnavus</i>	1	0	3	4	25
	<i>Ruminococcus</i> spp	0	0	2	0	2
<i>Slackia</i> spp		0	0	1	0	10
	<i>Slackia exigua</i>	0	0	1	0	9
	<i>Slackia</i> spp	0	0	0	0	1
<i>Solobacterium</i> spp		0	0	1	0	4
	<i>Solobacterium moorei</i>	0	0	1	0	4

Streptomyces spp		0	0	1	0	1
	<i>Streptomyces</i> other	0	0	1	0	0
	<i>Streptomyces</i> spp	0	0	0	0	1
<i>Trueperella</i> spp		0	1	0	0	0
	<i>Trueperella bernardiae</i>	0	1	0	0	0
<i>Tsukamurella</i> spp		0	0	0	0	3
	<i>Tsukamurella</i> spp	0	0	0	0	3
<i>Turicella</i> spp		0	0	0	0	2
	<i>Turicella otitidis</i>	0	0	0	0	1
	<i>Turicella</i> spp	0	0	0	0	1
<i>Vagococcus</i> spp		0	1	0	0	1
	<i>Vagococcus fluvialis</i>	0	1	0	0	0
	<i>Vagococcus</i> spp	0	0	0	0	1
<i>Virgibacillus</i> spp		0	0	0	0	1
	<i>Virgibacillus</i> spp	0	0	0	0	1
Total Gram-positive bacteria		149	181	185	271	505
Gram negative bacteria						
		2011	2012	2013	2014	2015
<i>Acetobacter</i> spp		0	0	0	0	3
	<i>Acetobacter aceti</i>	0	0	0	0	3
<i>Acidovorax</i> spp		0	0	0	0	1
	<i>Acidovorax</i> spp	0	0	0	0	1
<i>Actinobacillus</i> spp		6	9	3	3	6
	<i>Actinobacillus</i> other named	2	6	1	2	5
	<i>Actinobacillus</i> spp	3	2	2	1	1
	<i>Actinobacillus ureae</i>	1	1	0	0	0
<i>Aggregatibacter</i> spp		2	5	7	10	9
	<i>Aggregatibacter actinomycetemcomitans</i>	1	3	1	6	0
	<i>Aggregatibacter segnis</i>	1	0	3	2	4
	<i>Aggregatibacter</i> spp	0	2	3	2	5
<i>Agrobacterium</i> spp		21	37	32	34	35
	<i>Agrobacterium</i> other named	0	1	1	4	1
	<i>Agrobacterium</i> spp	2	2	0	0	1
	<i>Agrobacterium tumefaciens</i>	19	34	31	30	33
<i>Alcaligenes</i> spp		22	20	16	13	11
	<i>Alcaligenes faecalis</i>	13	16	14	12	7
	<i>Alcaligenes</i> other named	0	0	0	1	4
	<i>Alcaligenes</i> spp	9	4	2	0	0
<i>Alistipes</i> spp		0	0	1	0	2
	<i>Alistipes fingoldii</i>	0	0	1	0	1
	<i>Alistipes onderdonkii</i>	0	0	0	0	1

<i>Anaerobiospirillum</i> spp		2	2	9	15	21
	<i>Anaerobiospirillum</i> other named	2	2	6	7	6
	<i>Anaerobiospirillum</i> spp	0	0	2	8	13
	<i>Anaerobiospirillum succiniciproducens</i>	0	0	1	0	1
	<i>Anaerobiospirillum thomasii</i>	0	0	0	0	1
<i>Arcobacter</i> spp		1	1	0	0	1
	<i>Arcobacter butzleri</i>	1	0	0	0	1
	<i>Arcobacter</i> spp	0	1	0	0	0
<i>Aurantimonas</i> spp		0	0	0	1	1
	<i>Aurantimonas altamirensis</i>	0	0	0	1	1
<i>Azorhizobium</i> spp		0	0	0	0	1
	<i>Azorhizobium caulinodans</i>	0	0	0	0	1
<i>Azospirillum</i> spp		1	0	0	0	0
	<i>Azospirillum brasilense</i>	1	0	0	0	0
<i>Bergeyella</i> spp		0	0	0	0	1
	<i>Bergeyella zoohelcum</i>	0	0	0	0	1
<i>Bilophila</i> spp		2	0	1	1	7
	<i>Bilophila</i> spp	0	0	0	1	3
	<i>Bilophila wadsworthia</i>	2	0	1	0	4
<i>Branhamella</i> spp		1	3	0	0	2
	<i>Branhamella</i> spp	1	3	0	0	2
<i>Brevundimonas</i> spp		27	27	33	43	44
	<i>Brevundimonas diminuta</i>	10	7	11	13	20
	<i>Brevundimonas</i> spp	9	7	10	14	11
	<i>Brevundimonas vesicularis</i>	8	13	12	16	13
<i>Brucella</i> spp		13	11	4	12	10
	<i>Brucella abortus</i>	4	2	0	0	1
	<i>Brucella melitensis</i>	8	6	4	9	5
	<i>Brucella</i> spp	1	3	0	3	4
<i>Buttiauxella</i> spp		0	0	1	0	0
	<i>Buttiauxella agrestis</i>	0	0	1	0	0
<i>Calymmatobacterium</i> spp		0	0	0	1	0
	<i>Calymmatobacterium granulomatis</i>	0	0	0	0	0
	<i>Calymmatobacterium</i> spp	0	0	0	1	0
<i>Capnocytophaga</i> spp		8	13	24	36	38
	<i>Capnocytophaga canimorsus</i>	1	0	1	2	9
	<i>Capnocytophaga ochracea</i>	0	0	1	0	1
	<i>Capnocytophaga</i> other named	2	3	12	17	10
	<i>Capnocytophaga</i> spp	5	10	10	17	14
	<i>Capnocytophaga sputigena</i>	0	0	0	0	4
<i>Cardiobacterium</i> spp		6	3	10	3	3
	<i>Cardiobacterium hominis</i>	4	2	10	2	3
	<i>Cardiobacterium</i> other named	1	1	0	1	0

	<i>Cardiobacterium</i> spp	1	0	0	0	0
<i>Cedecea</i> spp		3	1	0	0	1
	<i>Cedecea lapagei</i>	0	0	0	0	1
	<i>Cedecea neteri</i>	1	0	0	0	0
	<i>Cedecea</i> spp	2	1	0	0	0
<i>Chromobacterium</i> spp		0	2	2	0	0
	<i>Chromobacterium</i> other named	0	1	0	0	0
	<i>Chromobacterium</i> spp	0	1	0	0	0
	<i>Chromobacterium violaceum</i>	0	0	2	0	0
<i>Chryseobacterium</i> spp		22	31	30	38	42
	<i>Chryseobacterium gleum</i>	0	1	1	1	5
	<i>Chryseobacterium indologenes</i>	19	22	21	30	35
	<i>Chryseobacterium</i> spp	3	8	8	7	2
<i>Comamonas</i> spp		16	8	8	10	15
	<i>Comamonas kerstersii</i>	0	0	0	0	3
	<i>Comamonas</i> other named	1	3	1	2	2
	<i>Comamonas</i> spp	4	1	0	3	6
	<i>Comamonas testosteroni</i>	11	4	7	5	4
<i>Cronobacter</i> spp		0	0	0	0	6
	<i>Cronobacter sakazakii</i>	0	0	0	0	6
<i>Cupriavidus</i> spp		0	0	0	0	5
	<i>Cupriavidus pauculus</i>	0	0	0	0	3
	<i>Cupriavidus</i> spp	0	0	0	0	2
<i>Delftia</i> spp		7	4	3	11	21
	<i>Delftia acidovorans</i> (<i>comamonas acidovorans</i>)	7	4	3	11	20
	<i>Delftia</i> spp	0	0	0	0	1
<i>Desulfovibrio</i> spp		0	1	1	1	1
	<i>Desulfovibrio desulfuricans</i>	0	0	1	0	0
	<i>Desulfovibrio fairfieldensis</i>	0	1	0	0	0
	<i>Desulfovibrio</i> spp	0	0	0	1	1
<i>Dialister</i> spp		4	3	3	3	6
	<i>Dialister microaerophilus</i>	1	1	0	1	0
	<i>Dialister pneumosintes</i>	2	2	3	2	5
	<i>Dialister</i> spp	1	0	0	0	1
<i>Edwardsiella</i> spp		3	2	1	0	0
	<i>Edwardsiella</i> other named	0	1	1	0	0
	<i>Edwardsiella</i> spp	0	1	0	0	0
	<i>Edwardsiella tarda</i>	3	0	0	0	0
<i>Eikenella</i> spp		8	8	6	19	20
	<i>Eikenella corrodens</i>	7	8	6	19	18
	<i>Eikenella</i> spp	1	0	0	0	2
<i>Elizabethkingia</i> spp†		11	4	5	2	16
	<i>Elizabethkingia meningoseptica</i>	11	4	4	1	1
	<i>Elizabethkingia miricola</i>	0	0	0	0	6

	<i>Elizabethkingia</i> spp	0	0	1	1	9
<i>Empedobacter</i> spp		0	0	0	1	1
	<i>Empedobacter brevis</i>	0	0	0	1	1
<i>Ewingella</i> spp		1	0	1	0	0
	<i>Ewingella americana</i>	1	0	1	0	0
<i>Flavobacterium</i> spp		1	2	5	2	0
	<i>Flavobacterium</i> other named	0	0	3	2	0
	<i>Flavobacterium</i> spp	1	2	2	0	0
<i>Gardnerella</i> spp		6	7	15	20	45
	<i>Gardnerella</i> other named	0	0	3	1	3
	<i>Gardnerella</i> spp	1	0	0	2	9
	<i>Gardnerella vaginalis</i>	5	7	12	17	33
<i>Grimontia</i> spp		1	0	0	0	0
	<i>Grimontia hollisae</i>	1	0	0	0	0
<i>Haematobacter</i> spp		0	0	0	0	3
	<i>Haematobacter</i> spp	0	0	0	0	3
<i>Hafnia</i> spp		28	37	37	42	43
	<i>Hafnia alvei</i>	27	37	37	42	43
	<i>Hafnia</i> spp	1	0	0	0	0
<i>Herbasprillum</i> spp		0	0	0	1	1
	<i>Herbasprillum huttiense</i>	0	0	0	1	1
<i>Janthinobacterium</i> spp		0	0	1	0	0
	<i>Janthinobacterium lividum</i>	0	0	1	0	0
<i>Kingella</i> spp		11	14	16	15	16
	<i>Kingella denitrificans</i>	1	1	0	0	1
	<i>Kingella kingae</i>	6	11	15	13	15
	<i>Kingella</i> spp	4	2	1	2	0
<i>Kluyvera</i> spp		12	27	28	27	9
	<i>Kluyvera ascorbata</i>	1	3	1	0	0
	<i>Kluyvera cryocrescens</i>	0	0	0	1	0
	<i>Kluyvera</i> spp	11	24	27	26	9
<i>Leclercia</i> spp		5	4	6	8	15
	<i>Leclercia adecarboxylata</i>	5	4	6	8	13
	<i>Leclercia</i> spp	0	0	0	0	2
<i>Legionella</i> spp		4	2	1	2	0
	<i>Legionella</i> other named	1	0	0	0	0
	<i>Legionella pneumophila</i>	3	1	1	2	0
	<i>Legionella</i> spp	0	1	0	0	0
<i>Leminorella</i> spp		0	0	0	1	0
	<i>Leminorella</i> spp	0	0	0	1	0
<i>Leptotrichia</i> spp		3	3	5	6	3
	<i>Leptotrichia buccalis</i>	1	1	3	1	0
	<i>Leptotrichia</i> spp	2	2	2	5	3
<i>Luteimonas</i> spp		0	1	0	0	0
	<i>Luteimonas</i> spp	0	1	0	0	0
<i>Massilia</i> spp		0	0	0	1	1
	<i>Massilia timonae</i>	0	0	0	1	1

<i>Methylobacterium</i> spp		0	0	0	1	0
	<i>Methylobacterium</i> spp	0	0	0	1	0
<i>Myroides</i> spp		3	9	8	5	6
	<i>Myroides odoratus</i>	2	8	5	2	2
	<i>Myroides</i> spp	1	1	3	3	4
<i>Oligella</i> spp		1	1	0	2	2
	<i>Oligella ureolytica</i>	1	0	0	0	1
	<i>Oligella urethralis</i>	0	1	0	2	1
<i>Oscillibacter</i> spp		0	0	0	1	1
	<i>Oscillibacter</i> spp	0	0	0	1	1
<i>Pandoraea</i> spp		0	2	0	1	0
	<i>Pandoraea apista</i>	0	1	0	0	0
	<i>Pandoraea</i> spp	0	1	0	0	0
	<i>Pandoraea sputorum</i>	0	0	0	1	0
<i>Parabacteroides</i> spp		0	1	0	6	15
	<i>Parabacteroides distasonis</i>	0	1	0	6	9
	<i>Parabacteroides</i> spp	0	0	0	0	6
<i>Paracoccus</i> spp		0	0	1	3	17
	<i>Paracoccus</i> spp	0	0	0	2	2
	<i>Paracoccus yeeii</i>	0	0	1	1	15
<i>Plesiomonas</i> spp		2	0	0	0	1
	<i>Plesiomonas shigelloides</i>	2	0	0	0	1
<i>Porphyromonas</i> spp		6	3	0	1	2
	<i>Porphyromonas asaccharolytica</i>	3	1	0	1	0
	<i>Porphyromonas</i> spp	3	2	0	0	2
<i>Psychrobacter</i> spp		0	1	6	3	9
	<i>Psychrobacter phenylpyruvicus</i>	0	1	5	0	4
	<i>Psychrobacter sanguinis</i>	0	0	1	3	5
<i>Rahnella</i> spp		5	1	2	3	2
	<i>Rahnella</i> named	4	1	2	3	2
	<i>Rahnella</i> spp	1	0	0	0	0
<i>Ralstonia</i> spp		2	6	8	10	5
	<i>Ralstonia insidiosa</i>	0	0	1	0	2
	<i>Ralstonia pickettii</i>	2	6	7	10	2
	<i>Ralstonia</i> spp	0	0	0	0	1
<i>Rhizobium</i> spp		0	0	1	0	3
	<i>Rhizobium</i> spp	0	0	1	0	3
<i>Shewanella</i> spp		3	2	4	3	3
	<i>Shewanella putrefaciens</i>	2	1	3	3	3
	<i>Shewanella</i> spp	1	1	1	0	0
<i>Shigella</i> spp		6	11	13	7	8
	<i>Shigella boydii</i>	0	0	1	2	0
	<i>Shigella flexneri</i>	3	4	5	2	3
	<i>Shigella sonnei</i>	2	3	3	3	3
	<i>Shigella</i> spp	1	4	4	0	2
<i>Sneathia</i> spp		0	0	0	1	0
	<i>Sneathia sanguinegens</i>	0	0	0	1	0

<i>Sphingobacterium</i> spp		10	8	23	47	20
	<i>Sphingobacterium mizutaii</i>	0	0	0	1	1
	<i>Sphingobacterium multivorum</i>	3	1	4	3	6
	<i>Sphingobacterium</i> spp	3	3	1	2	9
	<i>Sphingobacterium spiritivorum</i>	3	1	1	5	3
	<i>Sphingobacterium thalpophilum</i>	1	3	17	36	1
<i>Sphingomonas</i> spp		1	4	3	11	14
	<i>Sphingomonas</i> spp	1	4	3	11	14
<i>Streptobacillus</i> spp		1	0	1	1	2
	<i>Streptobacillus moniliformis</i>	0	0	1	0	2
	<i>Streptobacillus</i> spp	1	0	0	1	0
<i>Sutterella</i> spp		0	1	0	0	0
	<i>Sutterella wadsworthia</i>	0	1	0	0	0
<i>Vibrio</i> spp		1	2	1	2	3
	<i>Vibrio cholerae</i>	1	0	0	0	2
	<i>Vibrio fluvialis</i>	0	0	0	1	0
	<i>Vibrio parahaemolyticus</i>	0	0	1	1	1
	<i>Vibrio</i> spp	0	2	0	0	0
<i>Weeksella</i> spp		0	1	0	0	0
	<i>Weeksella virosa</i>	0	1	0	0	0
<i>Wolinella</i> spp		0	0	1	0	0
	<i>Wolinella</i> spp	0	0	1	0	0
<i>Yersinia</i> spp		8	6	9	10	5
	<i>Yersinia enterocolitica</i>	8	3	7	7	4
	<i>Yersinia pseudotuberculosis</i>	0	3	2	3	1
Total- Gram negative bacteria		307	351	396	500	584
Total- Gram positive and gram negative bacteria		456	532	581	771	1089

* Uncommon genera are identified on the basis of less than 50 reports from blood samples and diagnosed by culture or unknown methods in 2015.

**In addition to the genera given in the table there were also two reports of *Butyrubacterium* spp (one in 2014 and one in 2015). These have not been included in the table as this taxonomic name has been effectively published but not validly published under the rules of the International Code of Nomenclature of Bacteria (Bacteriological Code).

†The Bruker Maldi-ToF database does not currently include *Elizabethkingia anophelis* and it is likely that some isolates attributed to *E. meningoseptica* and/or *E. miricola* are in fact *E. anophelis*.