

Department of Clinical Microbiology

Head of Department: J.Vila

Head of Section of Bacteriology: F.Marco

Newsletter

Coordinator: M.Almela

Collaborators: J.C. Hurtado, A.Vergara, J.Mensa, J.A. Martínez, A.Soriano, L.Morata, N.Cobos, C.Hernández, R. Nuñez, C.Melción, I.Campo, R.Albarracín, R.Arce, C.Pitarch, P.Juíz, C.Esteban, Y.Zobomyrska, J.Puig de la Bellacasa, J.Bosch., M.T. Jiménez de Anta.

Objectives: Antimicrobial resistance is a public health problem. In 2004, a report of the WHO on “Priority Medicine for Europe and the World” identified infections caused by multiresistant bacteria as the number one disease requiring priority medicine. The surveillance of antimicrobial resistance in the nosocomial setting is among the measures to be taken to control the emergence and spread of multidrug resistant bacteria. In addition, this information will allow the clinician to know the ecology of the multidrug resistant bacteria, as well as the distribution of the microorganisms according to the different focus of bacteraemia. This information will support the clinician to implement a more appropriate empirical antibiotic therapy.

Directory

Bacteraemia and fungemia 2011

1. Outpatients bacteraemia and fungemia
 - 1.1. Microorganisms
 - 1.2. Microorganisms and focus of bacteraemia
 - 1.3. Antimicrobial susceptibility
2. Nosocomial bacteraemia and fungemia
 - 2.1. Microorganisms
 - 2.2. Microorganisms and focus of bacteraemia
 - 2.3. Antimicrobial susceptibility

Outpatient bacteraemia 2011

2.1.Microorganisms	ns
<i>Escherichia coli</i>	130
<i>Klebsiella</i> spp.	30
<i>Streptococcus pneumoniae</i>	26
<i>Staphylococcus aureus</i>	24
<i>Streptococcus viridans</i> group	13
<i>Enterococcus</i> spp.	11
<i>Bacteroides</i> spp.	9
Coagulase-negative staphylococcus	7
<i>Enterobacter</i> spp.	6
<i>Pseudomonas aeruginosa</i>	5
<i>Citrobacter</i> spp.	5
<i>Proteus mirabilis</i>	5
<i>Streptococcus agalactiae</i>	5
<i>Streptococcus anginosus</i> group	5
<i>Streptococcus pyogenes</i>	4
<i>Salmonella</i> spp.	4
<i>Listeria monocytogenes</i>	3
<i>Haemophilus influenza</i>	2
Others	26
Total	320

ns: number of strains

Outpatient bacteraemia 2011.
2.2. Microorganismes and focus .

Focus of bacteraemia	Urinary tract	Intrabdominal ¹	Unknown	Lower respiratory tract	Cardiovascular	Skin and soft tissues	Osteoarticular	Meningitis	Spontaneous bacterial peritonitis	Others focus	Totals
Number of episodes	104	74	41	33	17	11	6	4	3	6	299
Microorganisms											
<i>Bacteroides</i> spp.		9									9
<i>Citrobacter</i> spp.		2	1				1		1		5
<i>Enterobacter</i> spp.	1	3	1	1							6
<i>Enterococcus</i> spp.	3	2	3		3						11
<i>Escherichia coli</i>	79	33	11	4		1	1		1		130
Coag. negative Staphylococcus			3		2				1		6
<i>Haemophilus influenza</i>				1						1	2
<i>Klebsiella</i> spp.	14	14	1	1							30
<i>Listeria monocytogenes</i>			1					1		1	3
<i>Proteus</i> spp.	3		1			1					5
<i>Pseudomonas aeruginosa</i>	1	3		1							5
<i>Salmonella</i> spp.		3	1								4
<i>Staphylococcus aureus</i>	1	1	7	3	6	3	3				24
<i>Streptococcus agalactiae</i>	1		1		1	2					5
<i>Streptococcus anginosus</i> group		5									5
<i>Streptococcus pneumonia</i>		2	2	19				2		1	26
<i>Streptococcus pyogenes</i>			1	1		1		1			4
<i>Streptococcus viridians</i> group			5		7						12
Others	3 ^a	7 ^b	6 ^c	4 ^d	1 ^e	3 ^f	1 ^g			3 ^h	27

1. Includes focus biliary, peritonitis and abscesses.

a. *M. morgani* 1, *P. stuartii* 1, *Serratia* spp 1.

b. *Clostridium* spp 1, *E. corrodens* 1, *H. alvei* 1, *Lactobacillus* spp 1, *Prevotella* spp 1, *Serratia* spp 1, *Streptococcus gr.viridans* 1.

c. *Aeromonas* spp 1, *C.jejuni* 1, *Candida* spp 1, *Lactobacillus* spp 1, *M.morgani* 1, *P.shigelloides* 1.

d. *Fusobacterium* spp 1, *M.catarrhalis* 1, *Peptostreptococcus* spp 1, coag. Negative Staphylococcus 1.

e. *H. apphrophilus* 1.

f. *P. multocida* 1, *V. alginolyticus* 1, *M. odoratus* 1.

g. *S. dysgalactiae* 1.

h. *C. jejuni* 1, *G. vaginalis* 1, *Prevotella* spp 1.

Outpatient bacteraemia 2011
2.3. Antimicrobial susceptibility (%S)

Gram negative (ns)	Amicacin	Amox./Ac.clávuł.	Ampicillin	Cefotaxime	Ceftazidime	Cefuroxime	Ciprofloxacin	Colistin	Cotrimoxazole	Ertapenem	Gentamicin	Imipenem	Meropenem	Pipera/Tazobac.	Tobramycin
<i>Escherichia coli</i> (130)	100	80	35	92	92	90	61 ^a	100	66	100	91	100	100	95	90
<i>Klebsiella</i> spp. (30)	100	89	-	89	89	89	86 ^a	-	93	96	93	100	100	86	88
<i>Enterobacter</i> spp. (6)	100	-	-	100	100	-	100 ^a	-	100	100	100	100	100	100	100
<i>Proteus</i> spp. (5)	100	43	43	100	100	71	57 ^a	-	71	100	71	67	100	100	83
<i>Pseudomonas aeruginosa</i> (5)	100	-	-	-	67	-	67 ^a	100	-	-	83	67	83	67	67

Gram positive (ns)	Ampicillin	Cefotaxime	Clindamycin	Cotrimoxazole	Erythromycin	Gentamicin	Levofloxacin	Linezolid	Oxacillin	Penicilin	Rifampicin	Teicoplanin	Vancomicin
<i>Streptococcus pneumoniae</i> (26)	-	83 ^b	-	-	58	-	100	-	-	75 ^c	100	100	100
<i>Staphylococcus aureus</i> (24)	-	-	79	100	71	96	83	100	88	13	96	100	100
<i>Enterococcus faecalis</i> (9)	100	-	-	-	-	-	-	100	-	-	-	100	100

ns: number of strains

a: MIC for sensitive strains =o< 0.12 mcg/mL

b: MIC for sensitive strains =o< 0.5 mcg/mL

c: MIC for sensitive strains =o< 0.06 mcg/mL

Nosocomial bacteraemia¹ 2011

3.1.Microorganisms	ns
<i>Escherichia coli</i>	111
Coagulasa negative staphylococcus	107
<i>Enterococcus</i> spp.	84
<i>Klebsiella</i> spp.	73
<i>Staphylococcus aureus</i>	72
<i>Pseudomonas aeruginosa</i>	66
<i>Candida</i> spp. ²	29
<i>Enterobacter</i> spp.	25
<i>Streptococcus viridans</i> group	22
<i>Serratia</i> spp.	16
<i>Stenotrophomonas maltophilia</i>	10
<i>Proteus</i> spp.	9
<i>Acinetobacter</i> spp.	9
<i>Streptococcus pneumoniae</i>	8
<i>Bacteroides</i> spp.	7
<i>Pseudomonas putida</i>	4
<i>Listeria monocytogenes</i>	3
<i>Other</i>	45
Totals	700

1. Included bacteraemia in hospitalized patients diagnosed in hospitalized patients and those patients treated at the day-care center.

ns: number of strains

2. *C.albicans* 17, *C.glabrata* 4, *C.parapsilosis* 3, *C.tropicalis* 3, *C.krusei* 1, *C.norvegensis* 1.

Nosocomial bacteraemia¹ 2011

3.2. Microorganisms and focus.

Focus of Bacteraemia	Vascular catheter	Unknown	Urinary tract	Intrabdominal ²	Lower respiratory tract	Skin and soft tissue	Cardiovascular	Other focus	Totals
Number of episodes	281	134	78	73	24	19	7	15	631
Microorganisms (ns)									
<i>Acinetobacter</i> spp.	6				1	1		1	9
<i>Bacillus cereus</i>	3								3
<i>Bacteriodes</i> spp.		1	1	4				1	7
<i>Candida</i> spp.	16	7	1	4			1		29
<i>Citrobacter</i> spp.	3	1		3					7
<i>Enterobacter</i> spp.	12	3	4	3	1	1		1	25
<i>Enterococcus</i> spp.	40	20	8	9	1	2	2	2	84
<i>Escherichia coli</i>	19	23	34	24	2	7		2	111
<i>cogulasa negative Staphylococci</i>	81	20	3	2	1				107
<i>Klebsiella</i> spp.	29	14	10	13	2	1		4	73
<i>Listeria monocytogenes</i>		1		1				1	3
<i>Proteus</i> spp.	4	2	5			2			13
<i>Pseudomonas aeruginosa</i>	31	12	11	4	8				66
<i>Pseudomonas putida</i>	4								4
<i>Rhodotorula mucilaginosa</i>	1	1							2
<i>Serratia</i> spp.	11	1	3	1					16
<i>Staphylococcus aureus</i>	44	17	1	1	3	4	1	1	72
<i>Stenotrophomonas maltophilia</i>	7	1		1		1			10
<i>Streptococcus agalaciae</i>			2				1		3
<i>Streptococcus viridans</i> group	7	7		3		2	2		21
<i>Streptococcus pneumoniae</i>		5			3				8
Others	7 ^a	8 ^b	1 ^c	5 ^d	2 ^e	1 ^f	0	2 ^g	26
Totals	324	144	84	79	24	22	7	16	700

1. Included bacteremia in hospitalized patients and those patients treated at the day-care center

2. Includes focus biliary peritonitis and abscesses.

ns: number of strains.

a. *R. equi* 1, *A. viridans* 1, *Leuconostoc* spp 1, *Lactobacillus* spp 1, *Pepostreptococcus* spp 1, *P. agglomerans* 1, *R. pickettii* 1.

b. *C. jejuni* 1, *P. agglomerans* 1, *C. sordelli* 1, *C. perfringens* 1, *C. tertium* 1, *Fusobacterium* spp 2, *Porphyromonas* spp 1.

c. *A. viridans* 1.

d. *C. coli* 1, *A. caviae* 1, *A. sobria* 1, *S. typhimurium* 1, *Leuconostoc* spp 1.

e. *H. influenzae* 1, *V. parvula* 1.

f. *A. xylooxidans* 1.

g. *O. antropi* 1. *S. typhimurium* 1.

Nosocomial bacteraemia¹ 2011

3.3. Antimicrobial susceptibility (%S)

Gram negative (ns)	Amicacina	Amox./Ac.clàvul.	Ampicilin	Cefotaxime	Ceftazidime	Cefuroxime	Ciprofloxacín	Colistin	Cotrimoxazole	Ertapenem	Gentamicin	Imipenem	Meropenem	Pipera/Tazobac	Tobramycin
<i>Escherichia coli</i> (111)	100	67	21	79	79	74	46	100	46	99	85	100	100	92	79
<i>Klebsiella</i> spp. (73)	97	56	-	59	59	57	54	100	65	87	75	90	90	62	66
<i>Enterobacter</i> spp. (25)	100	-	-	85	85	-	92	100	88	96	100	100	100	88	100
<i>Serratia marcescens</i> (16)	-	-	-	92	92	-	85	-	100	100	92	100	100	92	-
<i>Proteus</i> spp. (9)	100	36	14	93	93	57	50	-	71	100	79	100	100	93	86
<i>Acinetobacter</i> spp. (6) ²	100	-	-	-	67	-	100	100	67	-	100	100	100	100	100
<i>Pseudomonas aeruginosa</i> (66)	98	-	-	-	73	-	63	100	-	-	72	62	70	73	72

Gram positive (ns)	Ampicilin	Cefotaxime	Clindamycin	Cotrimoxazole	Erytromycin	Gentamicin	Levofloxacín	Linezolid	Oxacillin	Penicillin	Rrifampicin	Teicoplanin	Vancomycin
coagulase negative <i>Staphylococcus</i> (107)	-	-	49	47	29	45	26	100	25	9	83	82 ³	100
<i>Staphylococcus aureus</i> (72)	-	-	89	95	77	94	73	100	76	3	98	100	100
<i>Enterococcus faecalis</i> (57)	100	-	-	-	-	-	-	100	-	-	-	100	100
<i>Enterococcus faecium</i> (25)	-	-	-	-	-	-	-	100	-	-	-	100	100

ns: number of strains

1. Included bacteraemia in hospitalized patients and those patients treated at the day-care center

2. *A. baumannii* is not included

3. Resistant strains of *S. haemolyticus* (9) and *S. epidermidis* (10)