

Appendix

4

Tables 114 to 123

Figures 35 to 43

**Multidrug-resistant bacteria  
(type 4 information)**

## APPENDIX 4

<b>Table 114</b>		<b><i>Staphylococcus aureus</i>: evolution of the percentage of methicillin resistance (MRSA) by type of hospital ward and by type of clinical sample (AP-HP Network, 1993-2002).</b>									
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
<b>Number of strains</b>	1,742	1,741	1,757	1,682	1,572	1,504	1,464	1,401	1,573	2,601	
<b>All</b>	41.0	38.5	35.5	35.4	36.3	35.7	36.3	39.9	38.5	32.2	
<b>Type of hospital/ward</b>											
<b>Short-term care hospitals:</b>	<b>39.4</b>	<b>35.6</b>	<b>31.8</b>	<b>32.0</b>	<b>30.5</b>	<b>29.3</b>	<b>30.2</b>	<b>32.8</b>	<b>32.3</b>	<b>28.5</b>	
Intensive-care units (ICU)	55.1	50.0	48.8	45.3	43.7	38.8	33.9	40.5	33.6	28.7	
– pediatric ICU	57.7	34.8	38.1	27.8	43.5	20.8	17.9	22.7	12.8	10.8	
– medical ICU	48.6	46.6	49.6	42.3	44.7	44.0	38.0	52.0	42.4	36.7	
– surgical ICU	62.5	56.8	50.0	50.0	42.4	36.3	33.8	32.9	31.8	27.3	
Surgical wards	38.7	37.4	30.1	34.6	27.0	25.9	30.2	25.7	32.3	29.8	
Medical wards	33.1	29.8	34.5	34.6	34.8	37.6	32.0	36.0	40.0	35.0	
Emergency wards	23.8	7.0	9.4	12.5	6.0	20.4	21.9	39.4	18.9	18.1	
<b>Long-term care hospitals</b>	<b>53.7</b>	<b>53.9</b>	<b>59.8</b>	<b>57.5</b>	<b>69.1</b>	<b>65.7</b>	<b>66.3</b>	<b>73.0</b>	<b>70.4</b>	<b>61.8</b>	
<b>Type of sample</b>											
– blood culture	45.3	30.9	35.8	26.7	29.2	30.0	32.2	46.8	33.0	28.6	
– serous fluid, pus taken by puncture	40.4	35.0	26.3	31.4	32.3	29.6	27.5	29.3	37.9	25.7	
– urines	60.5	63.5	57.2	61.8	60.2	57.2	64.0	71.7	66.1	58.6	
– protected respiratory samples	42.2	42.1	41.1	36.7	31.5	35.0	27.7	34.3	24.2	35.2	

Study duration: 2 months/year

<b>Table 115</b>		<b>Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA): evolution of the susceptibility (%) to the main antibiotics (AP-HP Network, 1993-2002).</b>									
Antibiotic	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
Gentamicin	12.2	15.3	34.5	38.8	55.5	66.7	73.8	72.9	76.1	79.6	
Tobramycin	4.6	1.6	11.4	5.2	6.8	9.8	12.3	12.0	13.2	18.7	
Cotrimoxazole	85.1	78.9	83.8	87.8	93.6	95.4	96.0	93.7	95.2	95.2	
Erythromycin	7.6	10.3	25.9	28.9	34.5	41.4	44.6	44.7	46.4	43.1	
Pristinamycin	85.4	88.5	90.0	87.9	89.1	91.2	93.2	90.5	90.2	90.3	
Chloramphenicol	92.6	88.6	82.8	78.7	83.5	76.7	87.0	90.9	92.0	92.8	
Quinolone	6.8	4.5	6.6	6.9	3.3	5.4	4.6	5.3	5.5	6.9	
Rifampicin	27.3	24.6	47.3	51.7	62.0	73.8	79.6	78.4	79.7	82.4	
Fusidic acid	88.8	89.8	87.2	89.9	89.6	90.9	92.0	84.8	90.2	90.6	
Fosfomycin	66.7	67.8	76.5	79.2	79.0	76.7	76.8	77.6	82.0	83.9	

Study duration: 2 months/year

<b>Table 116</b>		<b>Enterobacteria producing extended-spectrum beta-lactamases (ESBL): evolution (%) of species distribution (AP-HP Network, 1995-2002).</b>								
Species	1995	1996	1997	1998	1999	2000	2001	2002		
Number of strains	152	128	111	147	102	88	151	220		
<i>Citrobacter freundii</i>	7.2	7.8	11.7	8.2	5.9	6.8	1.3	0.9		
<i>Citrobacter koseri</i>	0	0	0	0	0	0	3.3	0.5		
<i>Enterobacter aerogenes</i>	12.5	22.7	18.9	15.6	14.7	30.7	24.5	14.2		
<i>Enterobacter cloacae</i>	4.7	5.5	4.5	2.0	3.9	1.1	4.7	6.4		
<i>Escherichia coli</i>	9.2	10.1	14.4	8.2	14.7	22.8	26.5	49.8		
<i>Klebsiella oxytoca</i>	1.3	1.6	0.0	4.1	1.0	4.5	5.3	3.2		
<i>Klebsiella pneumoniae</i>	57.9	44.5	38.8	55.1	48.0	25.1	23.8	17.8		
<i>Morganella morganii</i>	0	0	2.7	0.7	1.0	1.1	0	0		
<i>Proteus mirabilis</i>	2.6	2.3	5.4	3.4	5.9	5.7	5.3	5.0		
<i>Providencia sp</i>	2.0	1.6	1.8	2.0	0	1.1	0.7	1.8		
Others	2.6	3.9	1.8	0.7	4.9	1.1	4.6	0.4		

Study duration: 2 months/year

**Table 117** *Klebsiella pneumoniae* producing ESBL: evolution of the susceptibility (%) to the main antibiotics (AP-HP Network, 1993-2002).

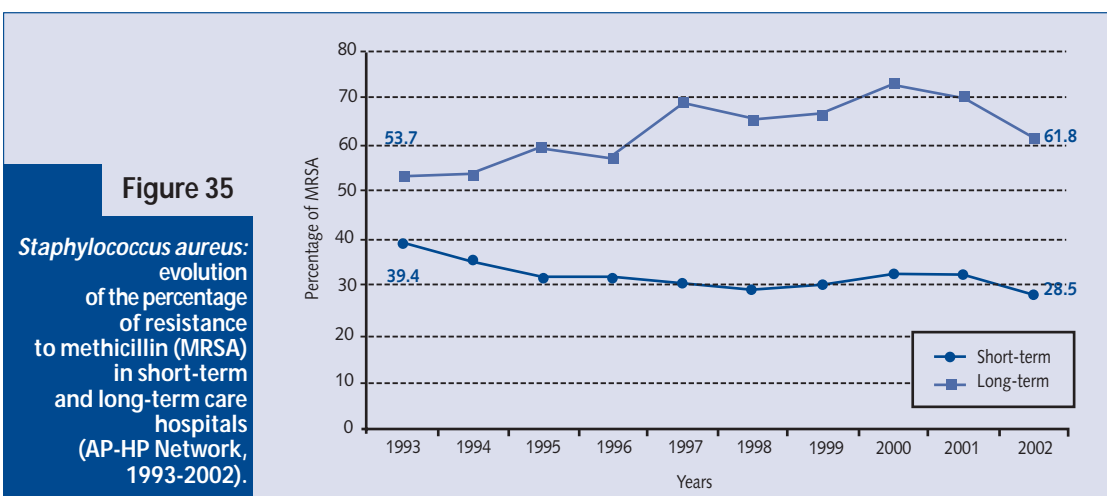
Antibiotic	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Number of strains	186	128	88	58	44	81	49	24	36	39
Gentamicin	48.7	49.1	64.1	70.6	52.1	50.7	61.2	45.8	38.9	53.8
Tobramycin	8.8	2.6	8.4	10.0	12.5	9.3	14.3	12.5	25.0	21.6
Amikacin	38.2	47.4	34.8	33.3	45.8	36.5	46.9	37.5	47.2	56.4
Ciprofloxacin	37.5	27.1	32.9	38.8	45.8	59.5	55.1	45.8	61.1	50.0
Quinolones	11.4	4.4	12.0	16.7	33.3	35.1	29.2	20.8	47.2	32.4

Study duration: 2 months/year

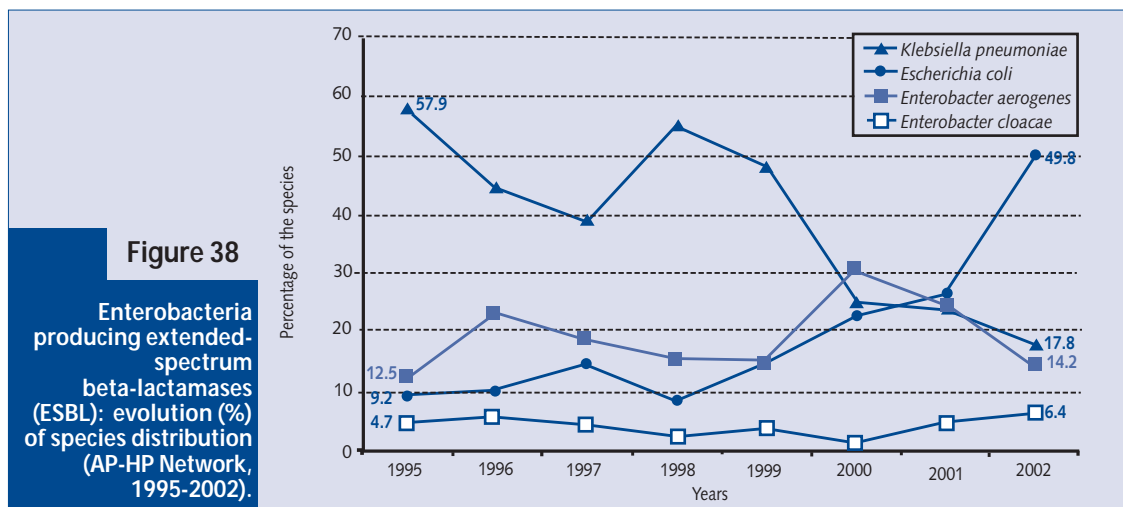
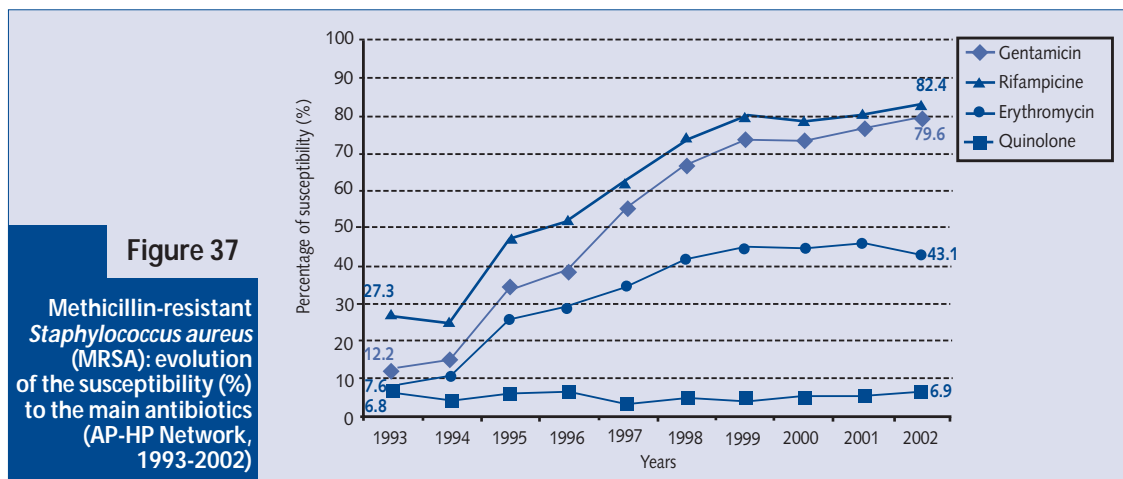
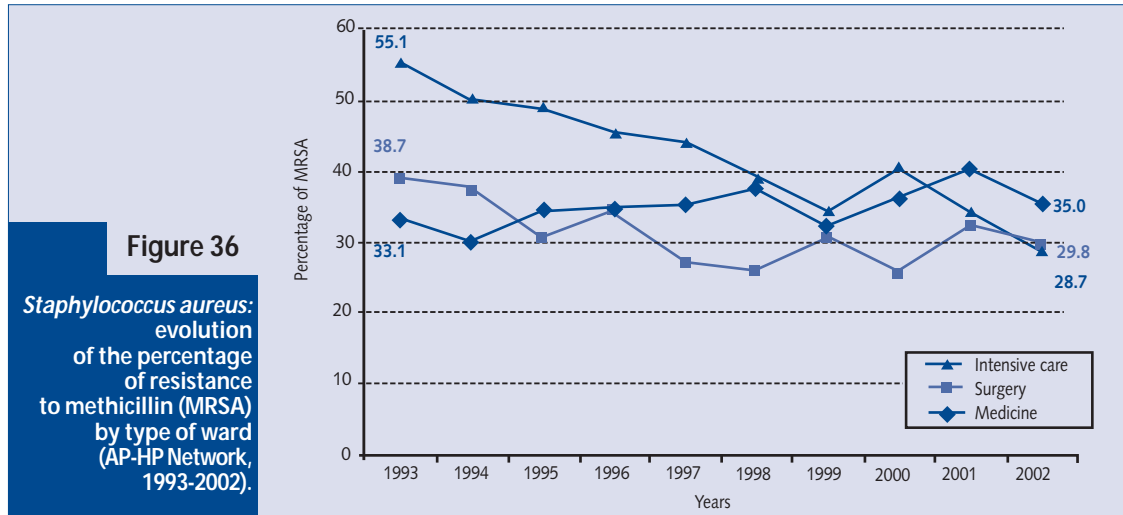
**Table 118** Enterobacteria producing ESBL (including *Klebsiella pneumoniae*): evolution of the susceptibility (%) to the main antibiotics (AP-HP Network, 2001-2002).

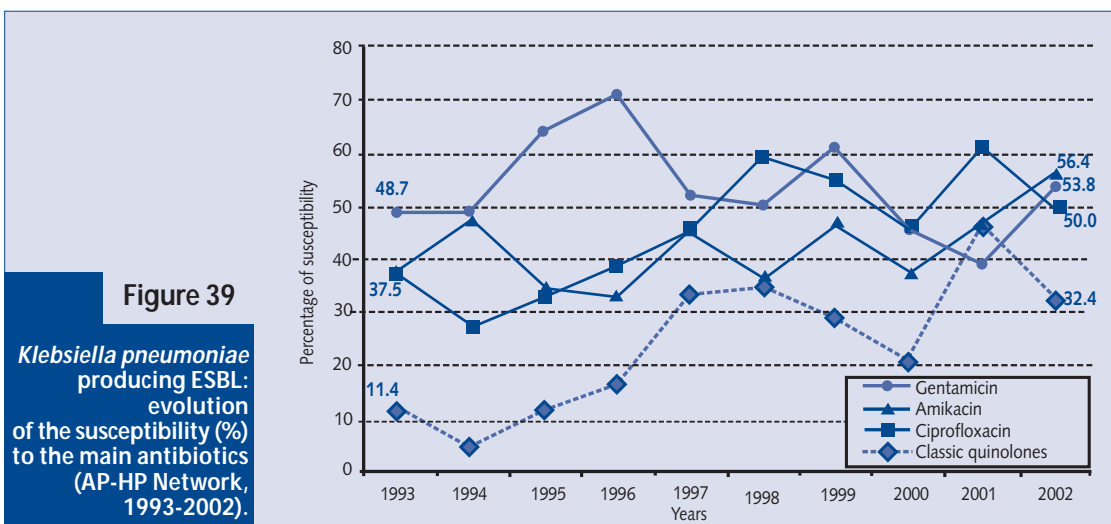
Antibiotic	2001	2002
Number of strains	(n=77)	(n=84)
Gentamicin	59.1	57.3
Tobramycin	23.5	16.9
Amikacin	49.7	56.8
Imipenem	99.3	99.5
Classic quinolones	28.6	13.8
Ciprofloxacin	39.6	24.2

Study duration: 3 months/year



APPENDIX 4





**Table 119** Enterobacteria producing extended-spectrum beta-lactamases (ESBL): evolution (%) of species distribution (REUSSIR Network, 1997-2002).

Species	1997 27 centers (n=1,229)	1998 29 centers (n=1,315)	1999 32 centers (n=730)	2000 10 centers (n=325)	2001 10 centers (n=315)	2002 10 centers (n=294)
<i>Citrobacter koseri</i>	4.2	2.7	3.4	4.6	0.9	8.9
<i>Enterobacter aerogenes</i>	49.1	58.3	55.9	68.3	69.2	45.2
<i>Enterobacter cloacae</i>	6.6	5.6	2.6	2.5	3.5	12.9
<i>Escherichia coli</i>	7.5	6.3	7.4	8.0	8.9	11.6
<i>Klebsiella oxytoca</i>	3.6	3.3	1.1	0.9	1.2	1.0
<i>Klebsiella pneumoniae</i>	17.4	16.7	10.8	4.3	7.0	10.2
<i>Proteus mirabilis</i>	7.9	5.0	3.3	5.9	2.0	4.8
<i>Providencia stuartii</i>	3.7	2.1	3.9	4.0	2.2	2.4
<i>Citrobacter freundii</i>			1.7	1.2	3.5	1.7
<i>Morganella morganii</i>			8.8	0.3	0.3	0.3
<i>Serratia marcescens</i>			1.1	0	1.3	1.0

**Table 120** *Staphylococcus aureus*: evolution of the percentage of resistance to methicillin (MRSA) by type of ward (C-CLIN Paris-Nord Network, 1998-2002).

	1998	1999	2000	2001	2002
Number of strains					
Short-term care hospitals:					
- intensive care units	32.9	33.3	35.2	37.5	34.6
- medicine	37.5	37.2	38.3	35.5	34.9
- surgery	32.1	34.0	35.8	39.8	36.5
Long-term care hospitals	31.6	29.2	32.5	33.8	30.3
Study duration: 3 months/year	62.0	61.0	62.2	67.0	66.3

APPENDIX 4

**Table 121** Methicillin-resistant *Staphylococcus aureus* (MRSA): evolution of the susceptibility (%) to the main antibiotics (C-CLIN Paris-Nord Network, 1998-2002).

Antibiotic	1998	1999	2000	2001	2002
Gentamicin	62.8	67.4	76.6	80.8	84.7
Tobramycin	5.8	5.6	6.9	9.5	12.2
Erythromycin	29.4	31.2	35.9	37.5	38.1
Pristinamycin	89.5	89.1	87.2	87.1	85.9
Pefloxacin	5.6	4.9	5.1	6.2	6.2
Rifampicin	68.2	74.7	82.3	84.5	86.4

Study duration: 3 months/year

**Table 122** Enterobacteria producing extended-spectrum beta-lactamases (ESBL): evolution (%) of species distribution (C-CLIN Paris-Nord Network, 1998-2002).

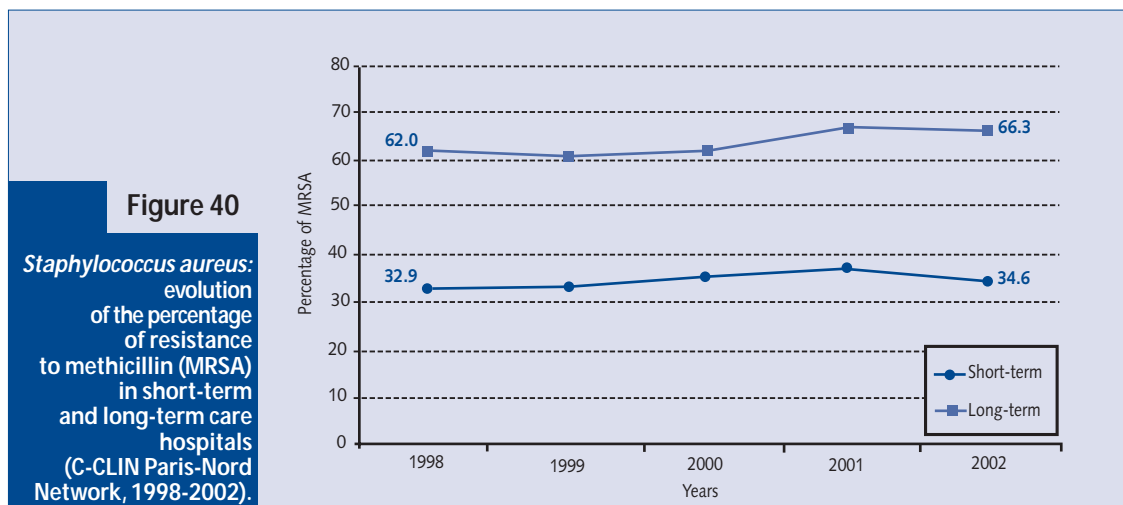
Years	1998	1999	2000	2001	2002
<i>Enterobacter aerogenes</i>	58.7	61.1	56.5	54.9	55.0
<i>Klebsiella pneumoniae</i>	19.8	17.8	22.4	18.0	16.1
<i>Escherichia coli</i>	6.4	6.9	6.3	8.9	11.3
<i>Enterobacter cloacae</i>	2.6	2.1	3.6	4.9	4.1
Others	12.5	12.1	11.2	13.3	13.5

Study duration: 3 months/year

**Table 123** Multidrug-resistant (resistant to isoniazid+rifampicine) *Mycobacterium tuberculosis* (NRC for resistance of mycobacteria to antimicrobials, 1992-2002).

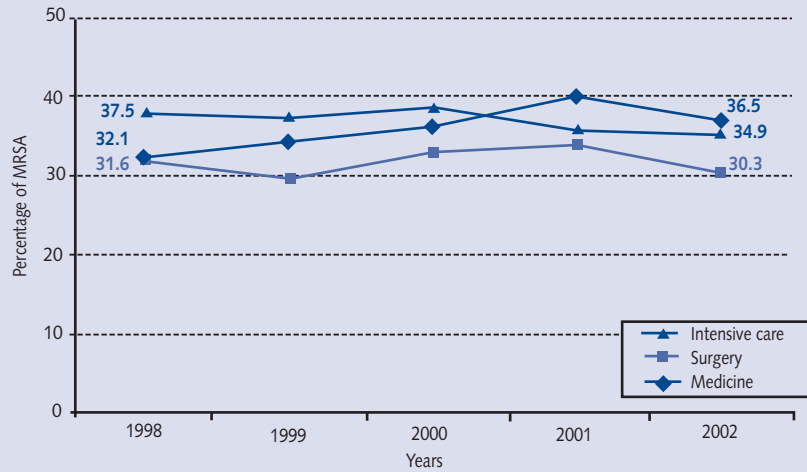
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Number of multidrug-resistant cases	48	40	58	40	29	26	39	48	51	48	79
Total number of culture-positive cases	8441	8539	7751	7119	6441	5917	5766	5597	5569	5445	5609
% of multiresistance	0,6	0,5	0,7	0,6	0,5	0,4	0,7	0,9	0,9	0,9	1,4
(CI <sub>95</sub> )*	(0,4-0,7)	(0,3-0,6)	(0,5-0,9)	(0,4-0,8)	(0,3-0,6)	(0,3-0,6)	(0,5-0,9)	(0,6-1,1)	(0,7-1,2)	(0,7-1,2)	(1,1-1,7)

\*CI<sub>95</sub>: 95% confidence interval



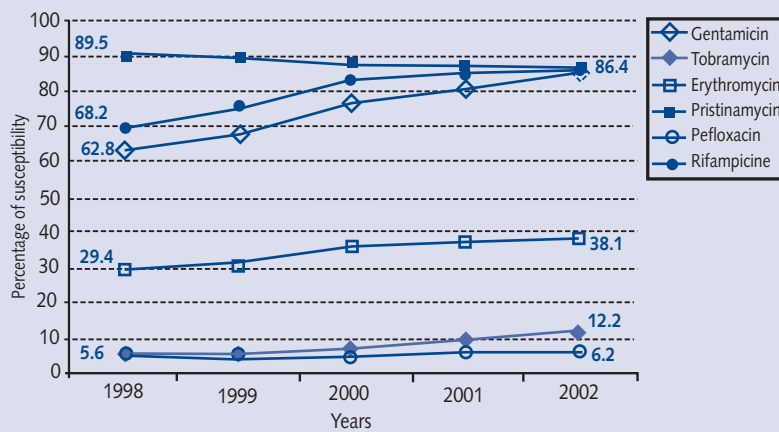
**Figure 41**

*Staphylococcus aureus*: evolution of the percentage of resistance to methicillin (MRSA) by type of ward (C-CLIN Paris-Nord Network, 1998-2002).



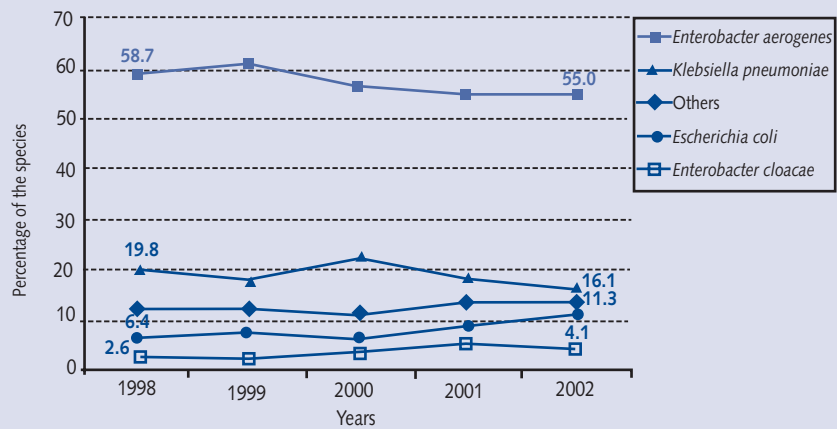
**Figure 42**

Methicillin-resistant *Staphylococcus aureus* (MRSA): evolution of the susceptibility (%) to the main antibiotics (C-CLIN Paris-Nord Network, 1998-2002).



**Figure 43**

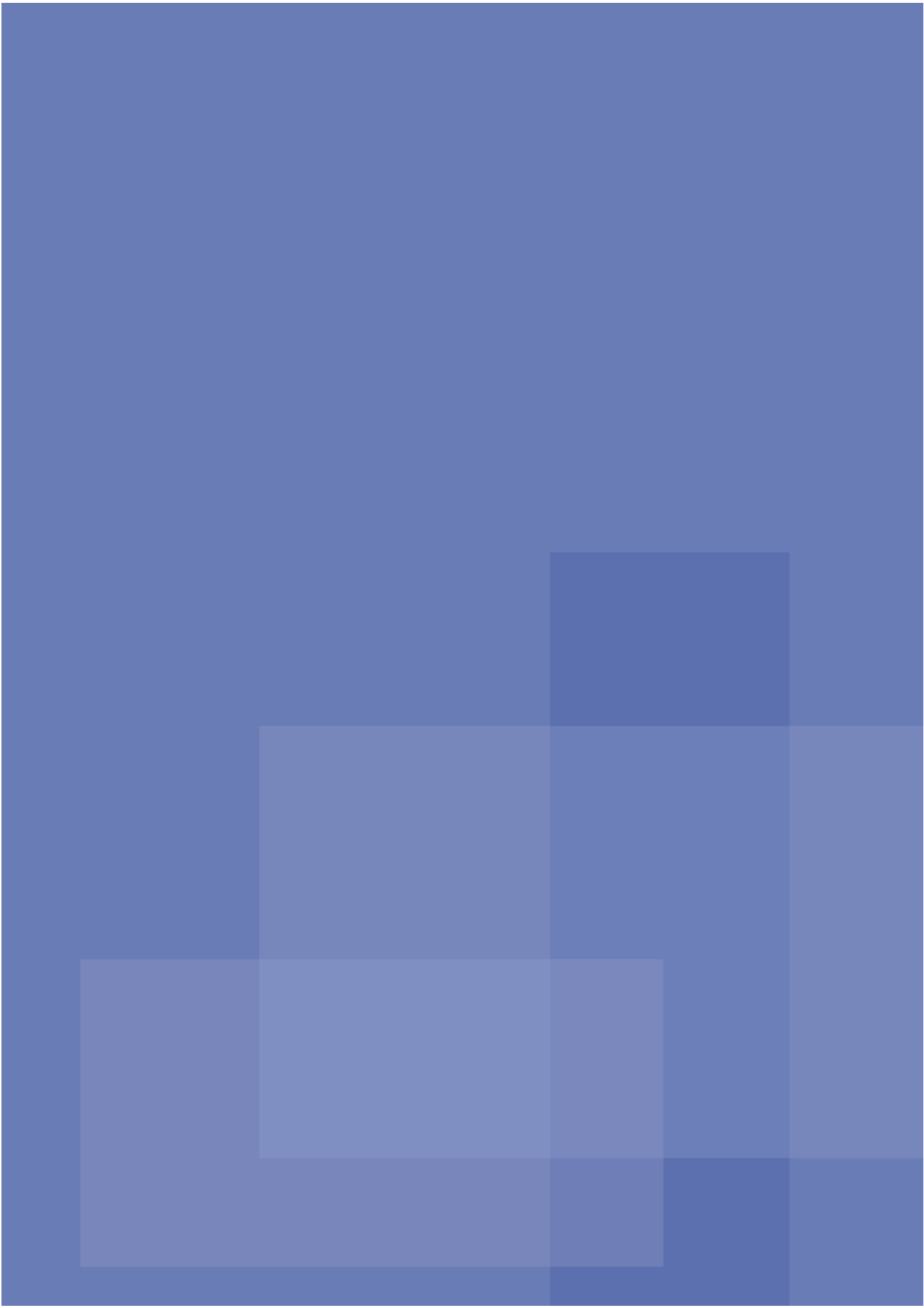
Enterobacteria producing extended-spectrum beta-lactamases (ESBL): evolution (%) of species distribution (C-CLIN Paris-Nord Network, 1998-2002).











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#### ● Réseaux de laboratoires vétérinaires

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- *Haemophilus influenzae*

- Pneumocoques

- Résistance aux antituberculeux

### Data analysed and tabulated by the members of the Scientific Board representing the networks since 2002

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RESAPATH

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CNR résistance aux antibiotiques

CNR pneumocoques

CNR résistance des mycobactéries aux antituberculeux

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