# Chapter IX

## Statistical data generated by ONERBA's Networks

# CHAPTER IX

Surveillance results on bacterial resistance to antimicrobials are provided as percentages of susceptibility in the species, except for some particular cases accepted by usage, as for methicillin resistant *Staphylococcus aureus* (MRSA).

Full names of bacterial species are used in the titles of tables and figures, but can be abbreviated in the columns of some tables. Common names are used when bacteria have not been characterised to the species level (e.g. coagulase-negative staphylococci…).

Common international denomination (DCI) of antimicrobials is used throughout the text. Abbreviations listed in the following table may be used if necessary.

**List of abbreviations**

| DCI | Abbreviation |
|---|---|
| Amikacin | **AN** |
| Amoxicillin | **AMX** |
| Amoxicillin+clavulanate | **AMC** |
| Aztreonam | **ATM** |
| Benzylpenicillin | **PEN** |
| Cefepime | **FEP** |
| Cefixime | **CFM** |
| Cefoxitin | **FOX** |
| Cefpirom | **FPO** |
| Cefpodoxime | **CPO** |
| Cefsulodine | **CFS** |
| Ceftazidime | **CAZ** |
| Ceftriaxone | **CRO** |
| Cefotaxime | **CTX** |
| Cefuroxime | **CXM** |
| Cephalothin | **CF** |
| Chloramphenicol | **C** |
| Clindamycin | **CLI** |
| Ciprofloxacin | **CIP** |
| Colistin | **CS** |
| Erythromycin | **E** |
| Ethambutol | **EMB** |
| Fosfomycin | **FOS** |
| Furadoine | **FT** |
| Fusidic acid | **FA** |
| Gentamicin | **GM** |
| Imipenem | **IMP** |
| Isepamycin | **ISP** |
| Isoniazid | **INH** |
| Kanamycin | **K** |

| DCI | Abbreviation |
|---|---|
| Levofloxacin | **LVX** |
| Lincomycin | **L** |
| Mecillinam | **MEC** |
| Metronidazole | **MTR** |
| Minocycline | **MIN** |
| Moxifloxacin | **MOX** |
| Nalidixic acid | **NAL** |
| Netilmicin | **NET** |
| Norfloxacin | **NOR** |
| Ofloxacin | **OFX** |
| Oxacillin | **OXA** |
| Pefloxacin | **PEF** |
| Pipemidic acid | **PIP** |
| Piperacillin | **PIP** |
| Piperacillin+tazobactam | **TZP** |
| Pristinamycin | **PT** |
| Pyrazinamide | **PYR** |
| Rifampicin | **RMP** |
| Spiramycin | **SP** |
| Streptomycin | **S** |
| Sulfadiazine | **SUL** |
| Teicoplanin | **TEC** |
| Telithromycin | **TEL** |
| Tetracycline | TE |
| Ticarcillin | **TIC** |
| Ticarcillin+clavulanate | **CLA** |
| Tobramycin | **TM** |
| Trimethoprim+sulfamethoxazole | **SXT** |
| Vancomycin | **VA** |

## Breakpoints of antimicrobials according to the CA-SFM 2002

| Antimicrobial agent | Disk load | Breakpoints (mg/L) S | R |
|---|---|---|---|
| **PENICILLINS** | | | |
| Penicillin G | 6µg (10UI) | ≤0,25 | >16 |
| Oxacillin (staphylococci) | 5µg | ≤2 | >2 |
| Ampicillin | 10µg | ≤4 | >16 |
| Amoxicillin | 25µg | ≤4 | >16 |
| Amoxicillin/clavulanate | 20/10µg | ≤4/2 | >16/2 |
| Ticarcillin | 75µg | ≤16 | >64 |
| Ticarcillin/clavulanate | 75/10µg | ≤16/2 | >64/2 |
| Piperacillin | | | |
| – enterobacteriaceae | 75µg | ≤8 | >64 |
| – other Gram negative bacilli | 75µg | ≤16 | >64 |
| Piperacillin/tazobactam | | | |
| – enterobacteriaceae | 75/10µg | ≤8/4 | >64/4 |
| – other Gram negative bacilli | 75/10µg | ≤16/4 | >64/4 |
| **CARBAPENEMS** | | | |
| Imipenem | 10µg | ≤4 | >8 |
| **MONOBACTAMS** | | | |
| Aztreonam | 30µg | ≤4 | >32 |
| **CEPHALOSPORINS** | | | |
| Cephalothin | 30µg | ≤8 | >32 |
| Cefamandole | 30µg | ≤8 | >32 |
| Cefuroxime | 30µg | ≤8 | >32 |
| Cefoxitin | 30µg | ≤8 | >32 |
| Cefotaxime | 30µg | ≤4 | >32 |
| Ceftriaxone | 30µg | ≤4 | >32 |
| Ceftazidime | 30µg | ≤4 | >32 |
| Cefepime | 30µg | ≤4 | >32 |
| Cefpirom | 30µg | ≤4 | >32 |
| **AMINOGLYCOSIDES** | | | |
| Gentamicin | | | |
| – streptococci, enterococci | 500µg | ≤250 | >500 |
| – other bacterial species | 15µg (10UI) | ≤4 | >8 |
| Netilmicin | 30µg | ≤4 | >8 |
| Kanamycin | | | |
| – streptococci, enterococci | 1000µg | ≤250 | >500 |
| – other bacterial species | 30UI | ≤8 | >16 |
| Tobramycin | 10µg | ≤4 | >8 |
| Amikacin | 30µg | ≤8 | >16 |
| **CHLORAMPHENICOL** | | | |
| Chloramphenicol | 30µg | ≤8 | >16 |
| **TETRACYCLINES** | | | |
| Tetracycline | 30UI | ≤4 | >8 |
| **MACROLIDES** | | | |
| Erythromycin | 15UI | ≤1 | >4 |
| Azithromycin | 15µg | ≤0,5 | >4 |
| Spiramycin | 100µg | ≤1 | >4 |
| **KETOLIDES** | | | |
| Telithromycin | 15µg | ≤0,5 | >2 |
| **LINCOSAMIDES** | | | |
| Lincomycin | 15µg | ≤2 | >8 |
| Clindamycin | 2UI | ≤2 | >2 |

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| Antimicrobial agent | Disk load | Breakpoints (mg/L) S | R |
|---|---|---|---|
| **STREPTOGRAMINS** | | | |
| Pristinamycin | 15µg | ≤1 | >2 |
| **GLYCOPEPTIDES** | | | |
| Teicoplanin | 30µg | ≤4 | >16 |
| Vancomycin | 30µg | ≤4 | >16 |
| **POLYPEPTIDES** | | | |
| Colistin | 50µg | ≤2 | >2 |
| **SULFAMIDES-TRIMETHOPRIM** | | | |
| Trimethoprim/sulfamethoxazole | 1,25/23,75µg | ≤2/38 | >8/152 |
| **NITROFURANS** | | | |
| Nitrofurantoin | 300µg | ≤32 | >128 |
| **QUINOLONES** | | | |
| Flumequin | 30µg | ≤4 | >8 |
| Nalidixic acid | 30µg | ≤8 | >16 |
| **FLUOROQUINOLONES** | | | |
| Ciprofloxacin | 5µg | ≤1 | >2 |
| Levofloxacin | | | |
| – *Streptococcus spp.* including *Streptococcus pneumoniae* | 5µg | ≤2 | >4 |
| – other bacterial species | 5µg | ≤1 | >4 |
| Moxifloxacin | 5µg | ≤1 | >2 |
| Norfloxacin | 5µg | ≤1 | >2 |
| Ofloxacin | 5µg | ≤1 | >4 |
| Pefloxacin | 5µg | ≤1 | >4 |
| **OTHERS** | | | |
| Fusidic acid | 10µg | ≤2 | >16 |
| Fosfomycin | 50µg | ≤32 | >32 |
| Rifampicin | | | |
| – staphylococci | 30µg | ≤0,5 | >16 |
| – other bacterial species | 30µg | ≤4 | >16 |

*From the 2002 report of the Antibiogram Committee of the French Society for Microbiology (**www.sfm.asso.fr**)*

## Index of tables regarding distribution of bacterial species



## Index of figures regarding data on antimicrobial susceptibility

## Index of tables regarding data on antimicrobial susceptibility

| Bacterial species | Table N° |
|---|---|
| *Acinetobacter baumannii* | 23 44 |
| *Citrobacter freundii* | 14 35 |
| *Enterobacter aerogenes* | 15 36 98 |
| *Enterobacter cloacae* | 16 37 62 98 |
| Enterobacteriaceae | 93 118 |
| *Enterococcus faecalis* | 4 11 27 66 92 |
| *Enterococcus faecium* | 12 28 92 |
| *Escherichia coli* | 1 2 13 25 34 46 49 52 55 59 61 62 63 67 69 72 79 80 81 82 83 84 86 94 |
| *Haemophilus influenzae* | 110 |
| *Klebsiella oxytoca* | 17 38 |
| *Klebsiella pneumoniae* | 18 39 62 97 117 |
| *Mycobacterium tuberculosis* | 111 112 123 |
| *Proteus mirabilis* | 19 40 62 95 |
| *Proteus vulgaris* | 20 41 |
| *Pseudomonas aeruginosa* | 3 22 26 43 47 50 53 56 70 73 86 99 |
| *Serratia* | 98 |
| *Serratia marcescens* | 21 42 |
| *Staphylococcus aureus* | 8 9 10 24 29 30 31 45 48 51 54 64 65 68 71 75 76 89 90 114 115 120 121 |
| Coagulase-negative staphylococci | 77 91 |
| *Streptococcus pyogenes* | 32 58 |
| *Streptococcus agalactiae* | 33 |
| *Streptococcus pneumoniae* | 5 6 57 78 86 100 101 102 103 104 105 106 107 108 109 |
| *Streptococcus uberis* | 7 113 |

# Notes