SUPPLEMENTARY TABLES

Supp. Table 1. Use of antibacterial agents (ATC group J01, antibacterials for systemic use) in DDD/100 bed days (DBD) from 2014-2018 in an ICU in Vojvodina, Serbia

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year**  **ATC INN** | 2014 | 2015 | 2016 | 2017 | 2018 |
| DBD (%) | DBD (%) | DBD (%) | DBD (%) | DBD (%) |
| **J01A - TETRACYCLINES** | **0.59(0.3%)** | **1.16(0.6%)** | **5.43(2.8%)** | **5.09(3.4%)** | **4.79(3.1%)** |
| J01AA02- Doxycycline | 0.00(0.0%) | 0.00(0.0%) | 0.14(0.1%) | 0.00(0.0%) | 0.00(0.0%) |
| J01AA12- Tigecycline | 0.59(0.3%) | 1.16(0.6%) | 5.28(2.8%) | 5.09(3.4%) | 4.79(3.1%) |
| **J01B - AMPHENICOLS** | **0.16(0.1%)** | **0.00(0.0%)** | 0.22(0.1%) | **0.15(0.1%)** | **0.92(0.6%)** |
| J01BA01- Chloramphenicol | 0.16(0.1%) | 0.00(0.0%) | 0.22(0.1%) | 0.15(0.1%) | 0.92(0.6%) |
| **J01C PENICILLINS** | **5.40(2.9%)** | **6.46(3.6%)** | **16.96(8.9%)** | **12.18(8.2%)** | **13.59(8.9%)** |
| **J01CA PENICILLINS EXT. SPEC.** | **0.00(0.0%)** | **0.16(0.1%)** | **1.38(0.7%)** | **0.23(0.2%)** | **0.03(0.0%)** |
| J01CA01- Ampicillin | 0.00(0.0%) | 0.00(0.0%) | 1.38(0.7%) | 0.00(0.0%) | 0.03(0.0%) |
| J01CA04- Amoxicillin | 0.00(0.0%) | 0.16(0.1%) | 0.00(0.0%) | 0.23(0.2%) | 0.00(0.0%) |
| **J01CR PENICILLINS COMB.** | **5.40(2.9%)** | **6.29(3.5%)** | **15.58(8.2%)** | **11.95(8.0%)** | **13.56(8.8%)** |
| J01CR01-Ampicillin and BLI\* | 1.43(0.8%) | 0.00(0.0%) | 1.51(0.8%) | 2.18(1.5%) | 5.33(3.5%) |
| J01CR02-Amoxicillin and BLI | 0.00(0.0%) | 1.23(0.7%) | 2.86(1.5%) | 3.30(2.2%) | 3.53(2.3%) |
| J01CR05-Piperacillin and BLI | 3.97(2.2%) | 5.07(2.8%) | 11.22(5.9%) | 6.47(4.3%) | 4.71(3.1%) |
| **J01D OTHER BETA-LACTAMS** | **89.30(48.4%)** | **89.11(49.8%)** | **93.13(48.9%)** | **94.53(63.6%)** | **81.30(53.0%)** |
| **J01DB 1ST GEN. CEPHALOSPORINS** | **0.77(0.4%)** | **1.52(0.9%)** | 1.00(0.5%) | **5.06(3.4%)** | **0.94(0.6%)** |
| J01DB01- Cephalexin | 0.00(0.0%) | 0.00(0.0%) | 0.23(0.1%) | 0.63(0.4%) | 0.12(0.1%) |
| J01DB04- Cefazolin | 0.77(0.4%) | 1.52(0.9%) | 0.77(0.4%) | 4.42(3.0%) | 0.82(0.5%) |
| **J01DC 2ND GEN. CEPHALOSPORINS** | **43.20(23.4%)** | **43.65(24.4%)** | **46.23(24.3%)** | **48.58(32.7%)** | **27.29(17.8%)** |
| J01DC02- Cefuroxime | 43.20(23.4%) | 43.65(24.4%) | 46.23(24.3%) | 48.58(32.7%) | 27.29(17.8%) |
| **J01DD 3RD GEN. CEPHALOSPORINS** | **27.65(15.0%)** | **21.68(12.1%)** | **21.05(11.1%)** | **21.63(14.5%)** | **15.28(10.0%)** |
| J01DD02- Ceftazidime | 6.83(3.7%) | 4.38(2.4%) | 6.39(3.4%) | 4.11(2.8%) | 1.31(0.9%) |
| J01DD04- Ceftriaxone | 20.82(11.3%) | 17.00(9.5%) | 14.66(7.7%) | 17.52(11.8%) | 13.98(9.1%) |
| J01DD08- Cefixime | 0.00(0.0%) | 0.30(0.2%) | 0.00(0.0%) | 0.00(0.0%) | 0.00(0.0%) |
| **J01DE 4TH GEN. CEPHALOSPORINS** | **4.20(2.3%)** | **3.30(1.8%)** | 5.64(3.0%) | **5.96(4.0%)** | **3.82(2.5%)** |
| J01DE01- Cefepime | 4.20(2.3%) | 3.30(1.8%) | 5.64(3.0%) | 5.96(4.0%) | 3.82(2.5%) |
| **J01DH CARBAPENEMS** | **13.48(7.3%)** | **18.96(10.6%)** | **19.21(10.1%)** | **13.31(8.9%)** | **33.95(22.1%)** |
| J01DH02- Meropenem | 9.91(5.4%) | 12.81(7.2%) | 11.61(6.1%) | 11.68(7.9%) | 14.66(9.6%) |
| J01DH03- Ertapenem | 0.00(0.0%) | 0.97(0.5%) | 0.63(0.3%) | 0.06(0.0%) | 0.00(0.0%) |
| J01DH51- Imipenem-cilastatin | 3.57(1.9%) | 5.18(2.9%) | 6.97(3.7%) | 1.56(1.1%) | 19.30(12.6%) |
| **J01E SULPH. /THRIMETHOPTRIM** | **0.66(0.4%)** | **2.01(1.1%)** | 1**.98(1.0%)** | **1.07(0.7%)** | **3.12(2.0%)** |
| J01EE01 Co-trimoxazole | 0.66(0.4%) | 2.01(1.1%) | 1.98(1.0%) | 1.07(0.7%) | 3.12(2.0%) |
| **J01FA MACROLIDES** | **0.02(0.0%)** | **0.15(0.1%)** | **0.43(0.2%)** | **0.42(0.3%)** | **0.30(0.2%)** |
| J01FA01- Erythromycin | 0.02(0.0%) | 0.00(0.0%) | 0.00(0.0%) | 0.00(0.0%) | 0.30(0.2%) |
| J01FA10- Azithromycin | 0.00(0.0%) | 0.15(0.1%) | 0.43(0.2%) | 0.42(0.3%) | 0.00(0.0%) |
| **J01FF LINCOSAMIDES** | **1.75(0.9%)** | **2.12(1.2%)** | **3.92(2.1%)** | **1.82(1.2%)** | **1.05(0.7%)** |
| J01FF01- Clindamycin | 1.75(0.9%) | 2.12(1.2%) | 3.92(2.1%) | 1.82(1.2%) | 1.05(0.7%) |
| **J01G AMINOGLYCOSIDES** | **4.59(2.5%)** | **4.34(2.4%)** | **4.59(2.4%)** | **4.61(3.1%)** | **3.64(2.4%)** |
| J01GB03- Gentamicin | 1.08(0.6%) | 0.82(0.5%) | 4.59(2.4%) | 1.74(1.2%) | 0.15(0.1%) |
| J01GB06- Amikacin | 3.51(1.9%) | 3.52(2.0%) | 0.87(0.5%) | 2.88(1.9%) | 3.49(2.3%) |
| **J01M QUINOLONES** | **24.00(13.0%)** | **17.98(10.0%)** | **19.17(10.1%)** | **12.11(8.1%)** | **6.46(4.2%)** |
| J01MA02- Ciprofloxacin | 15.57(8.4%) | 6.59(3.7%) | 8.30(4.4%) | 6.46(4.3%) | 2.91(1.9%) |
| J01MA12- Levofloxacin | 8.43(4.6%) | 11.39(6.4%) | 10.87(5.7%) | 5.65(3.8%) | 1.99(1.3%) |
| J01MA14- Moxifloxacin | 0.00(0.0%) | 0.00(0.0%) | 0.00(0.0%) | 0.00(0.0%) | 1.56(1.0%) |
| **J01X OTHER** | **58.12(31.5%)** | **55.65(31.1%)** | **44.56(23.4%)** | **16.75(11.3%)** | **38.15(24.9%)** |
| J01XA01- Vancomycin | 8.33(4.5%) | 12.05(6.7%) | 5.01(2.6%) | 6.89(4.6%) | 6.45(4.2%) |
| J01XB01- Colistin | 7.26(3.9%) | 3.91(2.2%) | 7.55(4.0%) | 2.66(1.8%) | 6.57(4.3%) |
| J01XD01- Metronidazole | 41.69(22.6%) | 38.07(21.3%) | 32.00(16.8%) | 5.72(3.8%) | 23.92(15.6%) |
| J01XX08- Linezolid | 0.84(0.5%) | 1.61(0.9%) | 0.00(0.0%) | 1.48(1.0%) | 1.22(0.8%) |
| **Total** | **184.59(100.0%)** | **178.97(100.0%)** | **190.39(0.0%)** | **148.72(100.0%)** | **153.32(100.0%)** |

\*BLI- beta lactamase inhibitors

**Supplementary table 2. Percentage of *Acinetobacter* spp. resistant to tested antibiotics**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Antibiotic** | **Year** | | | | |
| **2014** | **2015** | **2016** | **2017** | **2018** |
| Amikacin | 94.7% | 89.6% | 91.0% | 86.4% | 86.0% |
| Ampicillin-sulbactam | 67.7% | 83.3% | 74.2% | 40.9% | 50.4% |
| Ciprofloxacin | 97.4% | 94.9% | 92.3% | 92.0% | 90.8% |
| Doripenem | 0 | 93.4% | 91.3% | 92.1% | 90.6% |
| Gentamicin | 88.7% | 89.8% | 91.2% | 88.3% | 87.2% |
| Imipenem | 98.0% | 94.9% | 91.2% | 90.2% | 87.8% |
| Colistin | 0 | 0 | 1.6% | 3.2% | 11.4% |
| Levofloxacin | 92.9% | 94.9% | 92.3% | 93.0% | 91.5% |
| Meropenem | 98.0% | 94.8% | 92.2% | 92.2% | 90.6% |
| Tigecycline | 0 | 0 | 0 | 4.3% | 7.0% |
| Co-trimoxazole | 2.1% | 91.7% | 94.3% | 79.8% | 73.4% |
| Tobramycin | 47.8% | 71.4% | 100.0% | 78.0% | 76.4% |

**Supplemetary table 3. Percentage of *P. aeruginosa* resistant to tested antibiotics**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Antibiotic** | **Year** | | | | |
| **2014** | **2015** | **2016** | **2017** | **2018** |
| Amikacin | 56.8% | 36.4% | 50.9% | 56.9% | 25.7% |
| Cefepime | 43.8% | 23.8% | 60.0% | 56.9% | 62.3% |
| Ceftazidime | 43.5% | 38.3% | 57.1% | 59.6% | 62.3% |
| Ciprofloxacin | 80.0% | 54.4% | 58.7% | 64.2% | 66.2% |
| Doripenem | 0 | 41.0% | 56.6% | 59.2% | 56.9% |
| Gentamicin | 70.8% | 57.8% | 67.8% | 63.5% | 61.1% |
| Imipenem | 54.3% | 35.8% | 55.6% | 54.7% | 54.4% |
| Colistin | 0 | 0 | 0 | 0 | 0 |
| Levofloxacin | 82.1% | 54.5% | 63.6% | 65.3% | 66.2% |
| Meropenem | 58.0% | 38.5% | 56.5% | 64.2% | 64.9% |
| Piperacillin-tazobactam | 30.4% | 37.9% | 51.6% | 65.4% | 58.3% |
| Tigecycline | 0 | 0 | 0 | 0 | 0 |
| Tobramycin | 73.7% | 83.5% | 100.0% | 67.7% | 59.7% |

**Supplementary table 4. Percentage of *K. pneumoniae* resistant to tested antibiotics**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Antibiotic** | **Year** | | | | |
| **2014** | **2015** | **2016** | **2017** | **2018** |
| Amikacin | 29.2% | 28.4% | 26.6% | 44.7% | 46.6% |
| Co-amoxiclav | 90.7% | 88.4% | 90.5% | 93.6% | 90.7% |
| Ampicillin | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Cefepime | 85.7% | 88.5% | 88.5% | 87.0% | 85.2% |
| Ceftriaxone | 91.6% | 90.6% | 91.4% | 90.1% | 86.1% |
| Cefuroxime | 90.1% | 90.9% | 87.1% | 88.9% | 84.4% |
| Ciprofloxacin | 87.9% | 89.8% | 90.7% | 96.5% | 84.7% |
| Doripenem | 0 | 19.7% | 43.5% | 57.3% | 56.3% |
| Ertapenem | 42.6% | 49.1% | 70.4% | 64.6% | 67.3% |
| Gentamicin | 74.0% | 97.3% | 83.6% | 84.4% | 70.2% |
| Imipenem | 12.1% | 3.6% | 12.5% | 21.7% | 26.6% |
| Colistin | 0 | 0 | 20.0% | 38.5% | 40.0% |
| Levofloxacin | 73.9% | 47.1% | 36.4% | 93.0% | 80.5% |
| Meropenem | 12.1% | 13.6% | 38.3% | 58.4% | 57.7% |
| Piperacillin-tazobactam | 50.0% | 86.9% | 89.2% | 92.6% | 87.6% |
| Tigecycline | 0 | 0 | 0 | 12.5% | 16.7% |
| Co-trimoxazole | 89.8% | 89.7% | 90.4% | 79.3% | 79.7% |
| Tobramycin | 90.5% | 89.95 | 91.2% | 92.5% | 80.9% |