**Appendix 1:** Antibiotic Use by Age Groups

**Appendix 2:** Antibiotic Use Prevalence in Different Hospital Wards

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | | | | | |
| **Wards** | **Hosp. A** | **Hosp. B** | **Hosp. C** | **Hosp. D** | **Hosp. E** | **Hosp. F** | **Hosp. G** | **Hosp. H** | **Hosp. I** | **Hosp. J** | **Hosp. K** | **Hosp. L** | **Hosp. M** | **Total** |
|  | | | | | | | | | | | | | | |
| **Cardiac Care Unit** | 20 (4.2) | - | - | - | - | - | 5 (1.7) | 4 (3.8) | - | - | - | - | - | 29 (1.2) |
| **Dermatology** | - | - | - | - | - | - | 7 (2.4) | - | - | - | - | 7 (2.1) | - | 14 (0.6) |
| **Ear Nose Throat** | 12 (2.5) | 3 (2.0) | - | - | - | - | 8 (2.7) | - | - | - | - | 8 (2.4) | - | 31 (1.2) |
| **Gynecology** | 132 (27.4) | 33 (22.1) | 18 (14.8) | - | - | - | 87 (29.9) | 20 (19.0) | 20 (15.8) | - | 20 (23.8) | 55 (16.3) | - | 358 (14.4) |
| **Intensive Care Uuit** | 6 (1.2) | 3 (2.0) | - | 9 (17.6) | 7 (6.5) | 16 (11.4) | 19 (6.5) | 3 (2.9) | - | 39 (29.1) | 13 (3.6) | - | 3 (0.8) | 118 (4.8) |
| **Medical Ward/s** | 89 (18.5) | 46 (30.8) | 49 (40.2) | 32 (62.7) | 29 (26.8) | - | 82 (28.2) | 17 (16.2) | 39 (30.7) | 42 (31.3) | 8 (9.2) | 46 (13.6) | 142 (40.1) | 621 (25.0) |
| **Neurosurgery** | 26 (5.4) | - | - | - | - | - | - | - | - | - | - | - | - | 26 (1.0) |
| **Neonate Ward** | 24 (5.0) | - | - | - | - | - | - | 28 (26.7) | - | - | 10 (11.9) | - | - | 62 (2.5) |
| **Ophthalmology** | 19 (4.0) | - | - | - | - | - | - | - | - | - | - | - | - | 19 (0.8) |
| **Orthopedic Ward** | 21 (4.4) | - | - | - | 35 (32.4) | - | 1 (0.3) | 5 (4.8) | - | 6 (4.5) | 9 (10.7) | 26 (7.7) | - | 103 (4.1) |
| **Children Ward** | 39 (8.1) | 11 (7.4) | - | - | 11 (10.2) | - | 9 (3.1) | 4 (3.8) | - | - | 15 (17.9) | 48 (14.2) | 123 (34.8) | 260 (10.5) |
| **Pulmonology** | 14 (2.9) |  | - | - | - | - | - | - | - | - | - | 47 (13.9) | - | 61 (2.5) |
| **Surgical Ward/s** | 69 (14.3) | 48 (32.2) | 55 (45.1) | 4 (7.8) | 26 (24.1) | - | 73 (25.0) | 5 (5.8) | 56 (44.1) | 27 (20.1) | 19 (21.4) | 68 (20.1) | 56 (15.9) | 456 (18.4) |
| **Urology** | 10 (2.1) | - | - | - | - | - | - | - | - | - | - | 33 (9.8) | - | 43 (1.7) |
| **Private Room** | - | 5 (3.4) | - | 6 (11.8) | - | - | - | 19 | 12 | 20 (14.9) | - | - | - | 62 (2.5) |
| **Oncology Ward** | - | - | - | - | - | 124 (88.6) | - | - | - | - | - | - | - | 124 (5.0) |
| **Eye Ward** | - | - | - | - | - | - | - | - | - | - | - | - | 29 (8.2) | 29 (1.2) |
|  | | | | | | | | | | | | | | |

**Appendix 3:** Antibiotic Use Prevalence in Different Indications

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | | | | | |
| **Indications** | **Hosp. A** | **Hosp. B** | **Hosp. C** | **Hosp. D** | **Hosp. E** | **Hosp.F** | **Hosp. G** | **Hosp. H** | **Hosp. I** | **Hosp. J** | **Hosp. K** | **Hosp. L** | **Hosp. M** | **Total** |
|  | | | | | | | | | | | | | | |
| **BJ** | - | 1 (0.7) | 1 (0.8) | 1 (2.0) | 12 (11.1) | - | 1 (0.3) | 2 (1.9) | - | 5 (3.7) | - | 4 (1.2) | - | 27 (1.1) |
| **CNS** | 34 (7.1) | - | - | - | - | - | 9 (3.1) | - | - | 1 (0.7) | - | 4 (1.2) | 14 (4.0) | 62 (2.5) |
| **Lower UTI** | 3 (0.6) | - | - | - | 2 (1.9) | 6 (4.3) | 2 (0.7) | 1 (1.0) | - | - | 2 (2.4) | - | 1 (0.3) | 14 (0.7) |
| **ENT** | - | 5 (3.4) | - | - | - | - | 7 (2.4) | - | - | - | - | 1 (0.3) | - | 13 (0.5) |
| **EYE** | 8 (1.7) | - | - | - | - | - | 2 (0.7) | - | - | - | - | - | 5 (1.4) | 15 (0.6) |
| **FN** | - | - | - | - | - | 38 (27.1) | 6 (2.1) | - | - | - | - | 3 (0.9) | - | 47 (1.9) |
| **GIT** | 8 (1.7) | 11 (7.4) | 26 (21.3) | 3 (5.9) | 5 (4.6) | 12 (8.6) | 8 (2.7) | 7 (6.7) | 8 (6.3) | 9 (6.7) | - | 3 (0.9) | 18 (5.1) | 118 (4.8) |
| **General MP** | 53 (11.0) | 15 (10.1) | 22 (18.0) | 5 (9.8) | 14 (13.0) | 4 (2.9) | 27 (9.3) | 14 (13.3) | 9 (7.1) | 11 (8.2) | 4 (4.8) | 25 (7.4) | 57 (16.1) | 260 (10.5) |
| **Neonatal MP** | 5 (1.0) | - | - | - | - | - | - | 16 (15.2) | 2 (1.6) |  | 3 (3.8) | 1 (0.3) | 2 (0.6) | 29 (1.2) |
| **OBGY** | - | 3 (2.0) | - | - | - | - | 8 (2.7) | - | - | 5 (3.7) | 6 (7.1) | 2 (0.9) | - | 25 (1.0) |
| **LRTI** | 19 (4.0) | 18 (12.1) |  | 5 (9.8) | 14 (13.0) | 26 (18.6) | 18 (6.2) | 5 (4.8) | 14 (11.0) | 27 (20.1) | 13 (15.5) | 55 (16.3) | 83 (23.5) | 297 (12.0) |
| **P. BJ** | 22 (4.6) | 5 (3.4) | 20 (16.4) | 7 (13.7) | 36 (33.3) | 3 (2.1) | 8 (2.7) | 8 (7.6) | 7 (5.5) | 4 (3.0) | 9 (10.7) | 18 (5.3) | 2 (0.6) | 149 (6.0) |
| **P. CNS** | 14 (29) | - | - | 6 (11.8) | - | - | - | - | - | 4 (3.0) | - | - | - | 24 (1.0) |
| **P. CVS** | 6 (1.2) | - | - | - | - | - | 4 (1.4) | - | - | 5 (3.7) | - | - | - | 15 (0.6) |
| **P. ENT** | 15 (3.1) | - | - | - | - | - | - | - | - | - | 1 (1.2) | 8 (2.4) | 1 (0.3) | 25 (1.0) |
| **P. EYE** | 11 (2.3) | - | - | - | - | - | - | - | - | - | - | - | 15 (4.2) | 26 (1.0) |
| **P. GIT** | 52 (10.8) | - | 18 (14.8) | 4 (7.8) | 15 (13.9) | 2 (1.4) | 29 (10.0) | - | 19 (15.0) | 14 (10.4) | 18 (21.4) | 64 (18.9) | 46 (13.0) | 313 (12.6) |
| **P. OBGY** | 140 (29.1) | 30 (20.1) | 23 (18.9) | 7 (13.7) | - | 6 (4.3) | 82 (28.2) | 19 (18.1) | 24 (18.9) | 6 (4.5) | 8 (9.5) | 49 (14.5) | 14 (4.0) | 408 (16.5) |
| **P. RESP** | 26 (5.4) | 4 (2.7) | - | - | - | - | 1 (0.3) | 10 (9.5) | 5 (3.9) | 5 (3.7) | 5 (6.0) | 27 (8.0) | 12 (3.4) | 95 (3.8) |
| **P. UTI** | 10 (2.1) | - | - | - | - | - | - | - | 2 (1.6) | 4 (3.0) | - | 32 (9.5) | 1 (0.3) | 51 (2.1) |
| **PUO** | - | 6 (4.0) | 1 (0.8) | - | 3 (2.8) | - | 2 (0.7) | 6 (5.7) | 1 (0.8) | 3 (2.2) | 1 (1.2) | 1 (0.3) | 1 (0.3) | 25 (1.0) |
| **Upper UTI** | 7 (1.5) | - | - | - | - | 2 (1.4) | 5 (1.7) | - | - | 2 (1.5) | 2 (2.4) | 4 (1.2) | - | 22 (0.9) |
| **SEPSIS** | 23 (4.8) | 1 (0.7) | - | 2 (3.9) | 2 (1.9) | 19 (13.6) | 15 (5.2) | 1 (1.0) | 3 (2.4) | 3 (2.1) | 7 (8.3) | 8 (2.4) | 61 (17.3) | 145 (5.9) |
| **SST** | 15 (3.1) | 10 (6.7) | 10 (8.2) | 1 (2.0) | 5 (4.6) | 15 (10.7) | 26 (8.9) | 5 (4.8) | 29 (22.8) | 15 (11.2) | 4 (4.8) | 21 (6.2) | 14 (4.0) | 170 (6.8) |
| **TB** | 2 (0.4) | 2 (1.3) | - | 1 (2.0) | - | - | 2 (0.7) | - | - | 4 (3.0) | - | 3 (0.9) | - | 14 (0.6) |
| **UNK** | 2 (0.4) | 8 (5.4) | - | 6 (11.8) | - | - | 27 (9.3) | 4 (3.8) | - | 1 (0.7) | - | 1 (0.3) | 5 (1.4) | 54 (2.2) |
| **URTI** | 3 (0.6) | 1 (0.7) | - | 3 (5.9) | - | 2 (1.4) | - | 1 (1.0) | 4 (3.1) | 1 (0.7) | 1 (1.2) | 3 (0.9) | 1 (0.3) | 20 (0.8) |
| **Other** | 3 (0.6) | - | 1 (0.8) | - | - | 3 (2.1) | 2 (0.7) | 3 (2.9) | - | 5 (3.7) | - | - | - | 20 (0.8) |
|  | | | | | | | | | | | | | | |
| **BJ;** Bone & Joint, **CNS;** Central Nervous System, **CVS;** Cardiovascular System, **ENT;** Ear Nose Throat, **GIT;** Gastro-Intestinal Tract, **FN;** Fever in the Neutropenic patient, **MP;** Medical Prophylaxis, **OBGY;** Obstetric or Gynaecological, **LRTI;** Lower Respiratory Tract Infection, **P;** Medical or Surgical Prophylaxis, **PUO;** Pyrexia of Unknown Origin, **RESP;** Respiratory, **SST;** Skin and Soft Tissues, **TB;** Tuberculosis, **UTI;** Urinary Tract Infection. **URTI;** Upper Respiratory Tract Infection, **UNK;** Unknown | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | |

**Appendix 4:** Antibiotic Use prevalence of main antibiotics classes

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | | | | | |
| **Antibiotics** | **Hosp. A** | **Hosp. B** | **Hosp. C** | **Hosp. D** | **Hosp. E** | **Hosp. F** | **Hosp. G** | **Hosp. H** | **Hosp. I** | **Hosp. J** | **Hosp. K** | **Hosp. L** | **Hosp. M** | **Total** |
|  | | | | | | | | | | | | | | |
| **ANTIBACTERIALS**  (J01) | 464 (96.5) | 142 (95.3) | 122 (100) | 49 (96.1) | 99 (91.7) | 119 (85) | 288 (99.0) | 105 (100) | 127 (100) | 119 (88.8) | 81 (96.4) | 336 (99.4) | 347 (98.3) | 2398 (96.6) |
| **Tetracyclines**  (J01A) | - | 1 (0.7) | - | - | - | - | - | - | - | 1 (0.7) | - | 20 (5.9) | 1 (0.3) | 2 |
| **Penicillins**  (J01C) | 40 (8.3) | 29 (19.5) | 3 (2.5) | 4 (7.8) | 4 (3.7) | 49 (35.0) | 34 (11.7) | 7 (6.7) | 17 (13.4) | 14 (10.4) | 6 (7.1) | - | 66 (18.7) | 293 (11.8) |
| **Cephlosporins & Penams**  (J01D) | 255 (53.0) | - | 50 (41.0) | - | 48 (44.4) | 37 (26.4) | 114 (39.2) | 70 (66.7) | 74 (58.3) | 48 (35.8) | 59 (70.2) | 171 (50.6) | 188 (53.3) | 1218 (49.1) |
| **Sulfonamides & trimethoprim**  (J01E) | - | - | - | - | - | 4 (2.9) | 1 (0.3) | - | - | - | - | - | - | 5 |
| **Macrolides & lincosamides**  (J01F) | 1 (0.2) | 2 (1.3) | - | - | 1 (0.9) | 7 (5.0) | 7 (2.4) | - | 4 (3.1) | 7 (5.2) | - | 13 (3.8) | 4 (1.1) | 51 (2.1) |
| **Aminoglycosides**  (J01G) | 4 (10.8) | 5 (3.4) | 1 (0.8) | - | 23 (21.3) | 1 (0.7) | 9 (3.1) | 4 (3.8) | 2 (1.6) | 2 (1.5) | 10 (11.9) | 9 (2.7) | 14 (4.0) | 88 (3.5) |
| **Quinolones**  (J01M) | 50 (10.4) | 8 (12.1) | 30 (24.6) | - | 11 (10.2) | 4 (2.9) | 35 (12.0) | 13 (12.4) | 12 (9.4) | 20 (14.9) | 4 (4.8) | 70 (20.7) | 23 (6.5) | 282 (11.4) |
| **Other antibacterials**  (J01X) | 114 (23.7) | 18 (12.1) | 38 (31.1) | - | 12 (11.1) | 17 (12.1) | 88 (30.2) | 11 (10.5) | 18 (14.2) | 27 (20.1) | 2 (2.4) | 53 (15.7) | 51 (14.4) | 458 (18.4) |
| **Antimycotics**  (J02) | - | - | - | - | - | 10 (7.1) | 1 (0.3) | - | - | - | - | - | - | 11 (0.4) |
| **Antimycobacterials**  (J04) | - | 2 (1.3) | - | - | 7 (6.5) | - | - | - | - | 5 (3.7) | - | 1 (0.3) | 2 (0.6) | 21 (0.8) |
| **Antivirals**  (J05) | - | - | - | - | - | 5 (3.6) | - | - | - | 1 (0.7) | - | 1 (0.3) | 4 (1.1) | 21 (0.8) |
| **Antiprotozoals**  (P01) | 1 (0.2) | 5 (3.4) | - | - | - | 1 (0.7) | 2 (0.7) | - | - | 3 (2.2) | 3 (3.6) | - | - | 15 (0.6) |
| **Antidiarrheals**  (A07) | 2 (0.4) | - | - | 2 (3.9) | 2 (1.9) | 5 (3.6) | - | - | - | 6 (4.5) | - | - | - | 17 (0.7) |
|  | | | | | | | | | | | | | | |

**Appendix 5:** Antibiotics use prevalence

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | | | | | |
| **Antibiotics** | **Hosp. A** | **Hosp. B** | **Hosp. C** | **Hosp. D** | **Hosp. E** | **Hosp. F** | **Hosp. G** | **Hosp. H** | **Hosp. I** | **Hosp. J** | **Hosp. K** | **Hosp. L** | **Hosp. M** | **Total** |
|  | | | | | | | | | | | | | | |
| **Ampicillin**  (J01CA01) | 14 (2.9) | - | - | - | - | - | - | - | 15 (11.8) | - | - | 4 (1.2) | 35 (9.9) | 68 (2.7) |
| **Amoxicillin**  (J01CA04) | - | - | - | - | - | - | 6 (2.1) | 1 (1.0) | - | - | 1 (1.2) | 4 (1.2) | - | 12 (0.5) |
| **Benzylpenicillin**  (J01CE01) | 16 (3.3) | - | - | 1 (2.0) | - | - | 4 (1.4) | - | - | - | - | - | 11 (3.1) | 32 (1.3) |
| **Co-amoxiclav**  (J01CR02) | 10 (2.1) | 29 (19.5) | 1 (0.8) | 2 (3.9) | 2 (1.9) | 9 (6.4) | 13 (4.5) | 3 (2.9) | 2 (1.6) | 3 (2.2) | 5 (6.0) | 6 (1.8) | 6 (1.7) | 91 (3.7) |
| **Piperacillin,**  **enzyme inhibitor**  (J01CR05) | - | - | 2 (1.6) | 1 (2.0) | 2 (1.9) | 40 (28.6) | 10 (3.4) | 3 (2.9) | - | 11 (8.2) | - | 6 (1.8) | 6 (1.7) | 82 (3.3) |
| **Cefradine**  (J01DB09) | - | - | - | - | 3 (2.8) | - | 2 (0.7) | - | - | - | 9 (10.7) | 5 (1.5) | - | 19 (0.8) |
| **Cefuroxime**  (J01DC02) | - | 3 (2.0) | - | - | 8 (7.4) | 3 (2.1) | 1 (0.3) | - | - | 5 (3.7) | - | - | 3 (0.8) | 23 (0.9) |
| **Cefotaxime**  (J01DD01) | 54 (11.2) | - | - | - | - | - | - | 3 (2.9) | - | - | - | 1 (0.3) | - | 58 (2.3) |
| **Ceftazidime**  (J01DD02) | - | - | - | - | - | - | 1 (0.3) | 3 (2.9) | - | 1 (0.7) | - | - | 8 (2.3) | 11 (0.4) |
| **Ceftriaxone**  (J01DD04) | 134 (27.9) | 70 (47.0) | 47 (38.5) | 15 (29.4) | 18 (16.7) | 10 (7.1) | 94 (32.2) | 61 (58.1) | 44 (34.6) | 29 (21.6) | 37 (44.0) | 151 (44.7) | 158 (44.8) | 868 (35.0) |
| **Cefixime**  (J01DD08) | - | - | - | - | 1 (0.9) | 2 (1.4) | 1 (0.3) | - | - | 2 (1.5) | 11 (13.1) | - | - | 17 (0.7) |
| **Cefoperazone**  (J01DD12) | 42 (8.7) | - | - | - | 1 (0.9) | - | - | - | 29 (22.8) | - | - | 1 (0.3) | - | 73 (2.9) |
| **Cefoperazone, combinations**  (J01DD62) | 6 (1.2) | 3 (2.0) | - | 3 (5.9) | 16 (14.8) | - | 7 (2.4) | 1 (1.0) | - | 4 (3.0) | 2 (2.4) | 6 (1.8) | - | 48 (1.9) |
| **Meropenem**  (J01DH02) | 7 (1.5) | 3 (2.0) | 3 (2.5) | 6 (11.8) | 1 (0.9) | 14 (10.0) | 5 (1.7) | 2 (1.9) | - | 4 (3.0) | - | - | - | 45 (1.8) |
| **Imipenem and**  **enzyme inhibitor**  (J01DH51) | 12 (2.5) | - | - | 1 (2.0) | - | 5 (3.6) | 3 (1.0) | - | - | - | - | 7 (2.1) | 17 (4.8) | 45 (1.8) |
| **Clarithromycin**  (J01FA09) | - | - | - | - | - | - | 1 (0.3) | - | 1 (0.8) | 2 (1.5) | - | 12 (3.6) | 4 (1.1) | 20 (0.8) |
| **Azithromycin**  (J01FA10) | 1 (0.2) | 2 (1.3) | - | 5 (9.8) | - | 7 (5.0) | 2 (0.7) | - | 3 (2.4) | 4 (3.0) | - | - | - | 24 (1.0) |
| **Gentamicin**  (J01GB03) | 1 (0.2) | 4 (2.7) | - | - | 1 (0.9) | 1 (0.7) | 2 (0.7) | - | 1 (0.8) | 1 (0.7) | - | 1 (0.3) | - | 12 (0.5) |
| **Amikacin**  (J01GB06) | 2 (0.4) | 1 (0.7) | 1 (0.8) | 4 (7.8) | 20 (18.5) | - | 6 (2.1) | 4 (3.8) | 1 (0.8) | 1 (0.7) | 10 (11.9) | 7 (2.1) | 12 (3.4) | 69 (2.8) |
| **Ciprofloxacin**  (J01MA02) | 15 (3.1) | 6 (4.0) | 21 (17.2) | - | 6 (5.6) | 3 (2.1) | 14 (4.8) | 12 (11.4) | 7 (5.5) | 11 (8.2) | - | 39 (11.5) | 16 (4.5) | 150 (6.0) |
| **Levofloxacin**  (J01MA12) | - | - | - | 2 (3.9) | - | 1 (0.7) | 6 (2.1) | 1 (1.0) | 1 (0.8) | - | 4 (4.8) | 25 (7.4) | 6 (1.7) | 46 (1.9) |
| **Moxifloxacin**  (J01MA14) | 35 (7.3) | 2 (1.3) | 9 (7.4) | - | 5 (4.6) | - | 15 (5.2) | - | 4 (3.1) | 9 (6.7) | - | 6 (1.8) | 1 (0.3) | 86 (3.5) |
| **Vancomycin**  (J01XA01) | 9 (1.9) | 2 (1.3) | 2 (1.6) | 1 (2.0) | 2 (1.9) | 9 (6.4) | 9 (3.1) | 5 (4.8) | - | 5 (3.7) | 1 (1.2) | 6 (1.8) | 8 (2.3) | 59 (2.4) |
| **Metronidazole**  (J01XD01) | 106 (22.0) | 16 (10.7) | 36 (29.5) | 6 (11.8) | 8 (7.4) | 6 (4.3) | 78 (26.8) | 6 (5.7) | 18 (14.2) | 12 (9.0) | 1 (1.2) | 47 (13.9) | 43 (12.2) | 382 (15.4) |
| **Rifampicin, pyrazinamide,**  **ethambutol and isoniazid**  (J04AM06) | 3 (0.6) | 2 (1.3) | - | - | 5 (4.6) | - | - | - | - | 2 ()1.5 | - | 1 (0.3) | - | 13 (0.5) |
| **Aciclovir**  (J05AB01) | 10 (2.1) | - | - | - | - | 5 (3.6) | - | - | - | 1 (0.7) | - | 1 (0.3) | 4 (1.1) | 21 (0.8) |
| **Metronidazole**  (P01AB01) | - | 5 (3.4) | - | - | - | 1 (0.7) | 2 (0.7) | - | - | 3 (2.2) | 3 (3.6) | - | - | 15 (0.6) |
| **Rifaximin**  (A07AA11) | 2 (0.4) | - | - | 2 (3.9) | 2 (1.9) | 2 (1.4) | - | - | - | - | - | - | - | 13 (0.5) |
| **Others/ Miscellaneous** | 2 (0.4) | 1 (0.7) |  | 2 (3.9) | 7 (6.3) | 22 (15.4) | 9 (2.7) | 2 (2.0) | 1 (0.8) | 24 (16.8) | - | 2 (0.6) | 15 (4.5) | 79 (3.2) |
|  | | | | | | | | | | | | | | |