

**P1295**

**Paper Poster Session**

**Antimicrobial consumption in the hospital**

**Possible variance in assessment of antimicrobial consumption in multi-field hospitals with paediatric inpatients: conventional vs. novel paediatric-adjusted methodology**

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**Background:** Pediatric inpatients can compromise accuracy of antimicrobial (AM) consumption assessment in multi-field hospitals as WHO proposed ATC/DDD methodology is not precise due to age-dependent dose variations. We aimed to estimate variances in AM consumption in multi-field hospitals calculated by means of conventional vs. novel pediatric-adjusted methodology.

**Material/methods:** AM consumption was assessed by means of conventional ATC/DDD methodology vs. novel pediatric-adjusted methodology based on child Defined Daily Doses for children aged 0 to 12 years (S.A. Rachina et al., ECCMID 2013) on a simulated cohort of inpatients as well as cohort of inpatients from 3 multi-field hospitals. Data on amount of AM (ATC J01) were extracted from a multicentre consumption assessment study (OPTIMA Project, Y.A. Belkova et al., ICID 2012) and adjusted in accordance with national age-related restrictions. Results were analysed by means of descriptive statistics.

**Results:** On a simulated cohort of inpatients with pediatric share increasing by 10% for age groups 0 to 12 years old separately up to 10% consumption increase in comparison to conventional assessment was observed for all age groups in case of pediatric share less than 10%, 10-20% increase for 20-30% share of 0-8 years old patients, 10-50% increase for 20-90% share of 0-6 year old patients and  $\geq 2$  times increase for 80-90% share of children younger than 1 year (pic. 1). Consumption rates of lincosamides (60% increase for 50% pediatric share in equal proportion for age groups), nitroimidazoles (51%), aminoglycosides (39%), co-trimoxazole (30%), nitrofurans (26%), glycopeptides (23%), cephalosporins (20%) were most sensitive to age differences probably due to significant age-dependent dose variations. On a real population of inpatients less than 0.5% difference in total consumption was observed for 2 multi-field hospitals with pediatric inpatients share 1.3-1.7%. In a hospital with 22.8% pediatric share consumption rates were 5% higher than those based on conventional assessments with more prominent increase for nitroimidazoles (19%), aminoglycosides

(16%), co-trimoxazole (13%), glycopeptides, nitrofurans, cephalosporins (each 11%) and macrolides (10%).

**Conclusions:** Assessment by means of conventional ATC/DDD methodology leads to underestimation of AM consumption levels in multi-field hospitals with pediatric inpatients share  $\geq 20\%$ . The results are most sensitive to increase in pediatric patients share, age  $\leq 6$  years old as well as for such AM as lincosamides, nitroimidazoles, aminoglycosides, co-trimoxazole, nitrofurans, glycopeptides and cephalosporins.

**Picture 1. Influence of pediatric patients share on total AM consumption level in a multi-field hospital, %**

| Share / Age group | 0-1 year | 1 year | 2 years | 3 years | 4 years | 5 years | 6 years | 7 years | 8 years | 9 years | 10 years | 11 years | 12 years |
|-------------------|----------|--------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|
| 10%               | 107      | 105    | 104     | 104     | 104     | 103     | 103     | 103     | 102     | 101     | 101      | 101      | 101      |
| 20%               | 114      | 110    | 109     | 108     | 107     | 107     | 106     | 105     | 103     | 103     | 102      | 102      | 101      |
| 30%               | 123      | 117    | 115     | 114     | 112     | 111     | 110     | 108     | 106     | 104     | 103      | 103      | 102      |
| 40%               | 134      | 124    | 122     | 119     | 117     | 116     | 114     | 112     | 108     | 106     | 105      | 104      | 103      |
| 50%               | 148      | 133    | 130     | 126     | 123     | 121     | 119     | 116     | 110     | 108     | 106      | 105      | 104      |
| 60%               | 166      | 144    | 139     | 135     | 130     | 127     | 125     | 121     | 113     | 110     | 108      | 106      | 104      |
| 70%               | 190      | 158    | 151     | 145     | 138     | 135     | 132     | 126     | 116     | 112     | 110      | 108      | 105      |
| 80%               | 225      | 177    | 166     | 158     | 149     | 144     | 140     | 132     | 120     | 115     | 112      | 109      | 107      |
| 90%               | 279      | 202    | 187     | 175     | 162     | 156     | 150     | 140     | 125     | 119     | 115      | 111      | 108      |