A total of 2118 clinical isolates of Streptococcus pneumoniae were collected by 15 laboratories in 7 surveys, i.e.: 1995 (143), 1997 (162), 1999 (227), 2001 (334), 2003 (391), 2004 (424) and 2005 (447) and tested for their susceptibility to ciprofloxacin (CIP), levofloxacin (LEV), moxifloxacin (MOX), ofloxacin (OFL). Following CLSI recommendations, the following fluoroquinolones were used: Ciprofloxacin (CIP), Levofoxacin (LEF), Moxifloxacin (MOX), Ofloxacin (OFL).

**Methods**

**ISOLATES:** A total of 2118 consecutive, unduplicated isolates of S. pneumoniae were collected by the 15 participating laboratories during 7 surveys: 1995 (143), 1997 (162), 1999 (227), 2001 (334), 2002 (391), 2004 (424), 2005 (447).

**Susceptibility Testing:** Susceptibility was determined by using a micro-dilution technique following CLSI recommendations. S. pneumoniae ATCC 49619 was used for quality control.

**Antimicrobial Agents:** The following fluoroquinolones were tested: Ciprofloxacin (CIP), Levofloxacin (LEF), Moxifloxacin (MOX), Ofloxacin (OFL).

**Resistance Rates:** Resistance rates were determined by using the CLSI breakpoints (I=Intermediate; R=high level: expressed in µg/ml). CIP: I/R = 2/4 (no separate CLSI breakpoint; see Table III. Cross-resistance between CIP and OFL was practically complete while CIP and OFL in 2005 (N:1.6%, S: 13.2%, B: 0%; S/N = P<0.001) and S/B = 1 dilution less active than CIP while LEV and MOX were 1 and 3 dilution respectively more active than CIP.

**Results:**

**Rates of Non-Susceptibility:** see Tables I and II. Significant increase for CIP between 1995-1999 and for OFL between 1995-1997. Afterwards, significant decrease for CIP, LEV and OFL. Most of the isolates are intermediate and high level resistance is rarely found.

**Distribution:** see Figs 1 and 2. One modal distributions. No shift in time for the modulus. The MIC50 for susceptible and non-susceptible populations did not change significantly during the years. MIC distributions for CIP and LEV are comparable. Intrinsically, MOX is the most active compound.

**Results (2):**

**Differences in Rates of Non-Susceptibility:** see Fig. 3. Significant difference between rates from North, South and Brussels were only found for CIP in 2005. Geographic rates were based on the postal code of the patients and are only available since 2003 the survey. Differences are rates according to age, admission type, sampling side and gender were minor and not significant.

**Cross-Resistance:** see Table III. Cross-resistance between the FQ was incomplete. The majority of the CIP non-susceptible isolates remained fully susceptible to LEV (68.4%-100%) and MOX (96.3%-100%).