



RESISTANCE OF *STREPTOCOCCUS PNEUMONIAE* ISOLATES CAUSING INVASIVE PNEUMOCOCCAL DISEASE IN 17 HOSPITALS OF COLOMBIA



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INTRODUCTION

Streptococcus pneumoniae infections have high morbidity and mortality rates, especially in children under five years of age. This bacteria has been associated with clinically important infections such as otitis media, acute sinusitis, community-acquired pneumonia and invasive pneumococcal disease (IPD) including bacterial pneumonia, peritonitis, arthritis, septic pericarditis, sepsis and meningitis. Penicillin was for a long time the treatment of choice for infections caused by *Streptococcus pneumoniae*; however, sensitivity to this beta-lactam has decreased due to the emergence and rapid global spread of multi-resistant clones.

OBJECTIVE

This study analyzes the behavior of resistance of *Streptococcus pneumoniae* causing IPD in a pediatric population treated at 17 hospitals in Colombia, belonging to the Neumocolombia Network.

MATERIALS AND METHODS

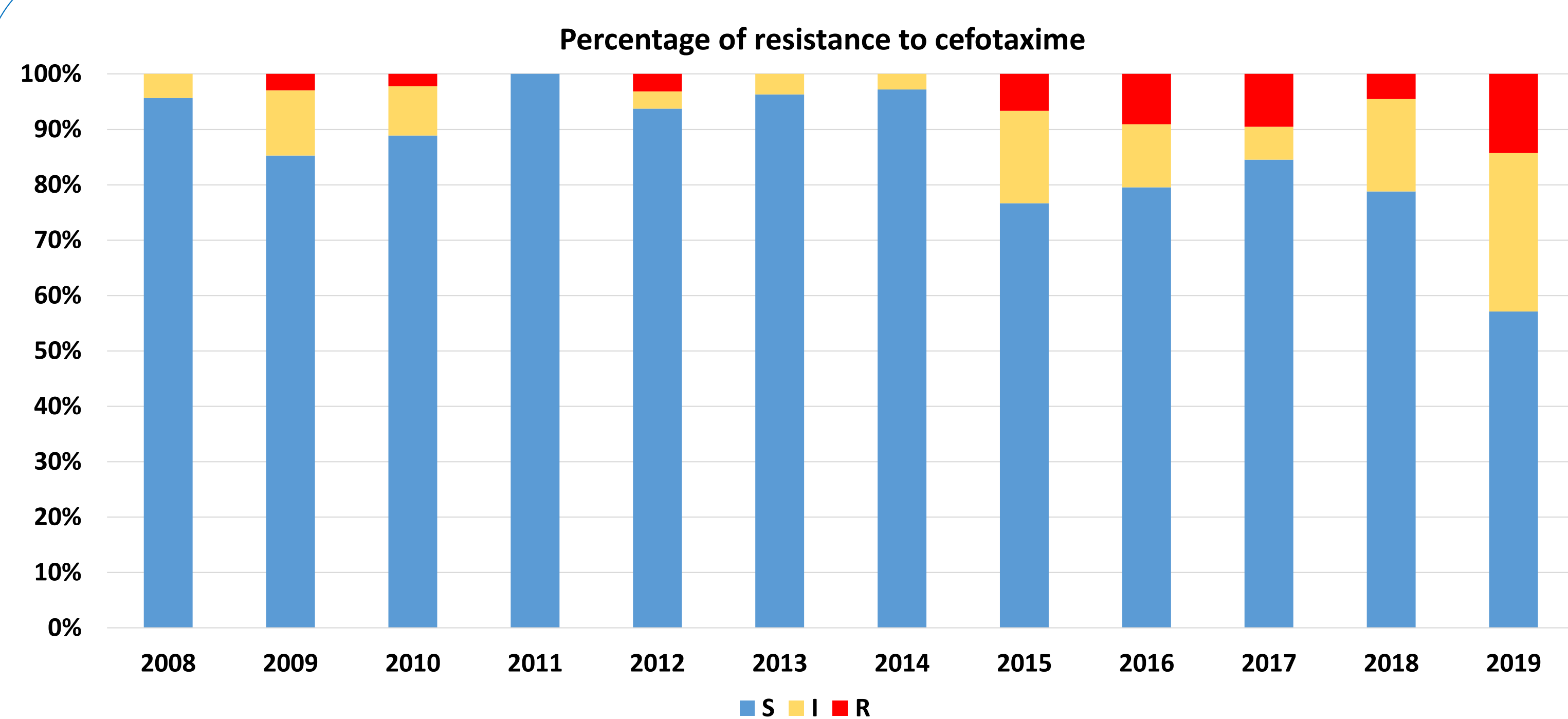
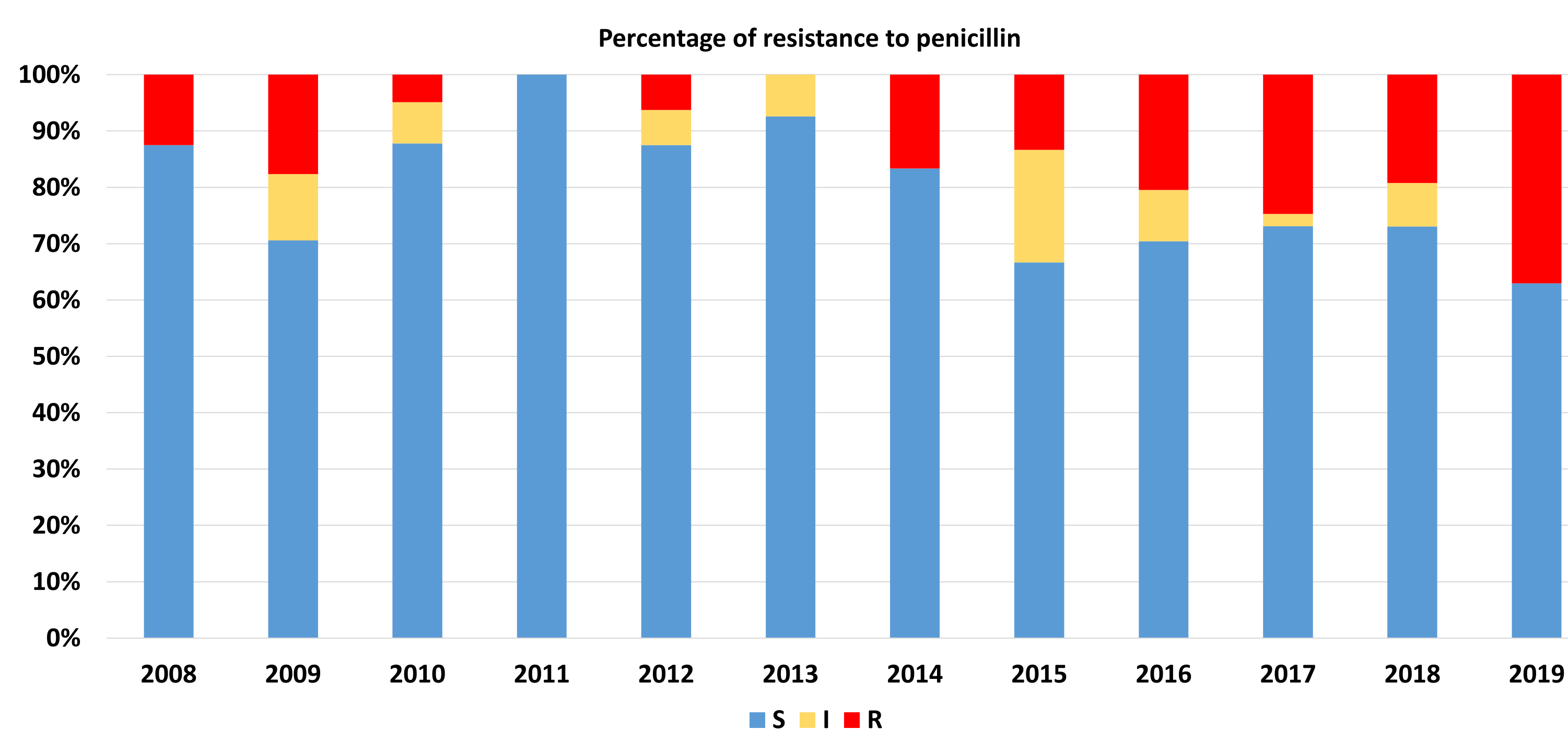
Ambispective case series study in pediatric patients with IPD admitted to 10 hospitals of Bogotá in 2008-2019, and 4 hospitals of Cali, 2 of Medellin and 1 of Cartagena in 2017-2019.

RESULTS

651 cases of IPD were found. Susceptibility profile information was obtained for 567 (87%) isolates; of which 494(75.8%) were non-meningeal (NM) and 73 (11.2%) meningeal (M). Regarding NM, 16.3% were penicillin-resistant, and 5.8% showed intermediate susceptibility; 5% were resistant to ceftriaxone and 9.5% had intermediate susceptibility. M showed 19.1% resistance to penicillin, 5.4% resistance to ceftriaxone, and 5.4% intermediate susceptibility.

Figure 1 shows the penicillin resistance of non-meningeal isolates per year.

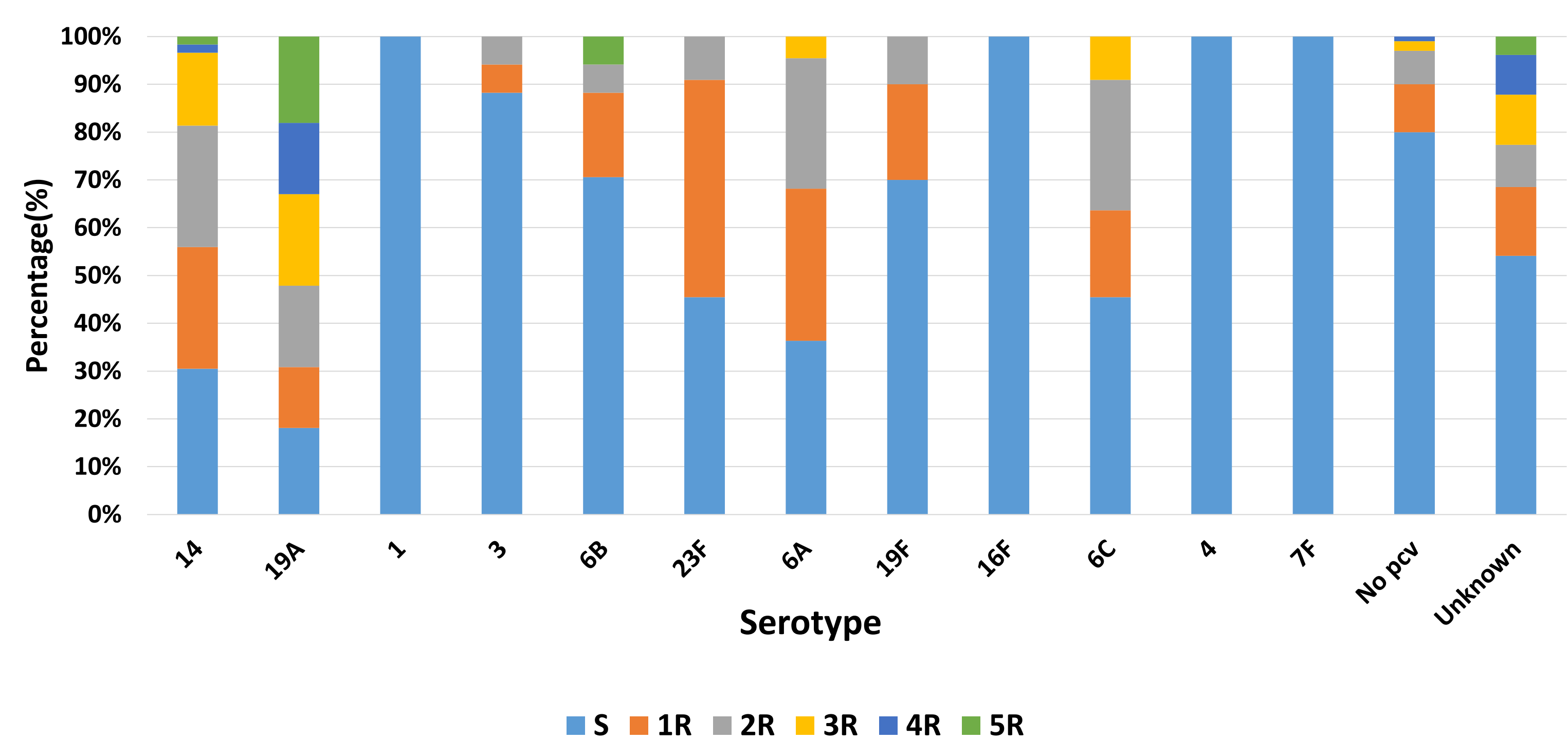
Figure 1: Percentage of resistance of non-meningeal isolates to penicillin and cefotaxime



Resistance to macrolides was 26.2%, to clindamycin 19.7%, and to trimethoprim sulfa 32%. All isolates were susceptible to vancomycin. Only 23.8% of the isolates were susceptible to all antibiotics; 36% were multi-resistant. The serotype most resistant to penicillin was 19A (26.8%), which was associated with multiresistance.

Only 19% of Spn19A isolates were sensitive to all antibiotics, 12.7% were resistant to one family of antibiotics, 17 to two families, 19% to 3 families, 14.8% to 4 families, and 18% to 5 families of antibiotics. 52% of Spn19A isolates were multi-resistant.

Figure 2: Percentage of pneumococcal resistance per serotype and antibiotic family (2008 – 2019)



CONCLUSION

An increase in antibiotic resistance is observed in relation to previous reports associated with the emergence of multi-resistant *S. pneumoniae* serotype 19A.

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NEUMOCOLOMBIA NETWORK

Juan David Farfan, Liliana Castelar, Luisa Imbachi, Gloria Rey, Claudia Sierra, Claudia Clavijo, Nella Sanchez, Ana Yadira Santana, Ángela Pescador, Laura Roció Peláez Rincón, Lorena Duarte, Juan Pablo Londoño Ruiz, Katerine Duran Acosta, Isabel Correa, Jessica Toro Maldonado, Cindy Carolina Suarez, Jhon Alexander García, Adriana Correa, Maria del Palmar Aros, Maria Isabel Munera, Oscar Alfonso Villada Ochoa, Laura Lorena Jimenez Henao, Mayiber Henao Roldan, Anita Montañez.