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INTRODUCTION

Streptococcus pneumoniae (SP) is a major human pathogen and can cause serious invasive infections such as pneumonia, sepsis and meningitis. In 2010, childhood vaccination against SP was introduced using a pneumococcal conjugate vaccine (PCV): the 13-valent PCV. In 2018, the latter was replaced by a new version: the 10-valent PCV.

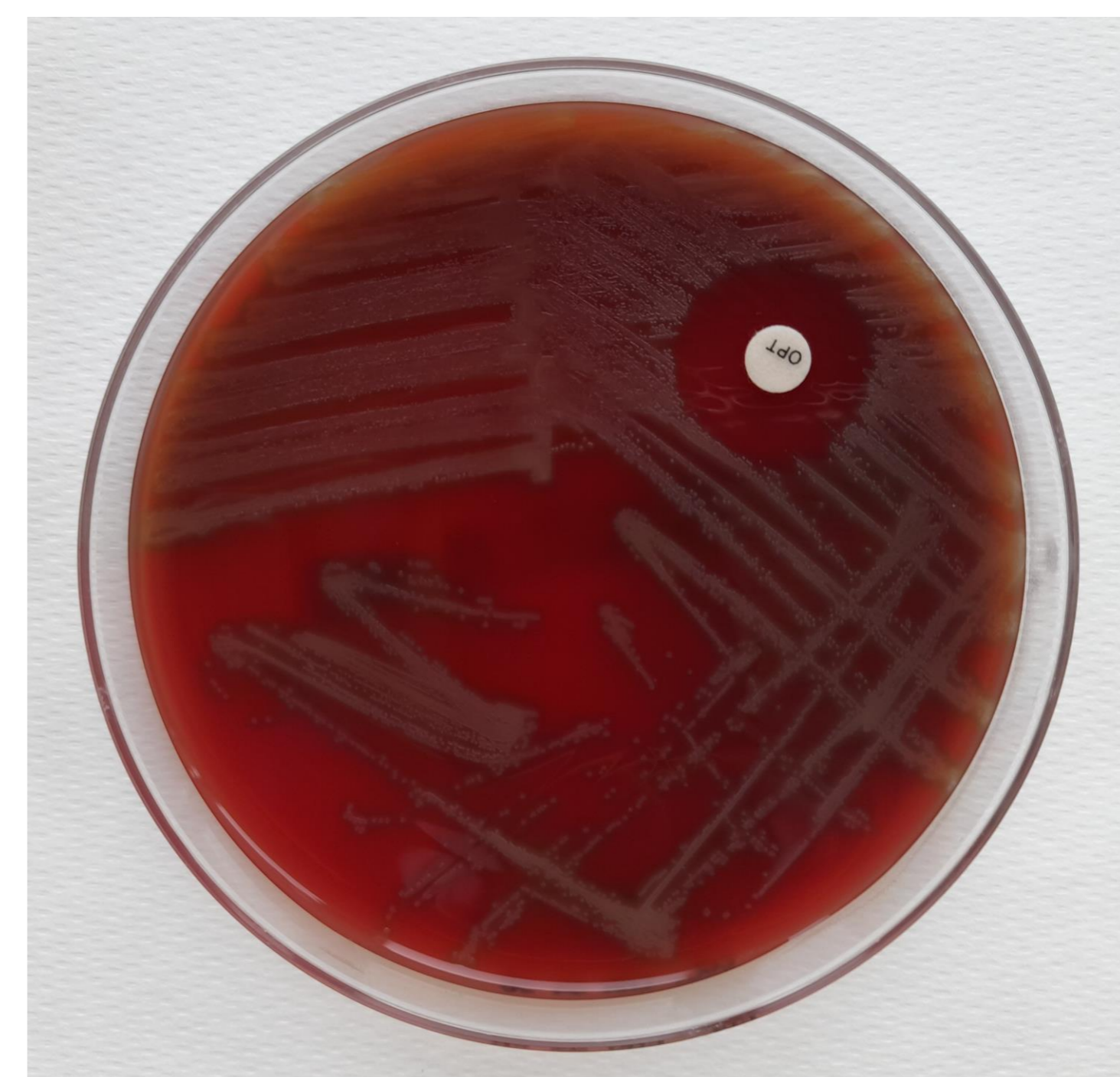
With this update, 3 SP serotypes were excluded from pediatric vaccination: serotype 3, serotype 6A and serotype 19A.

The aim of this study is to evaluate the spread and resistance of SP serotypes 3, 6A, 19A among the population of Piedmont in the period 2008-2023 based on data collected by the laboratory of Microbiology and Virology U. of the City of Health and Science of Turin, Regional Reference Center for the serotyping of SP strains.

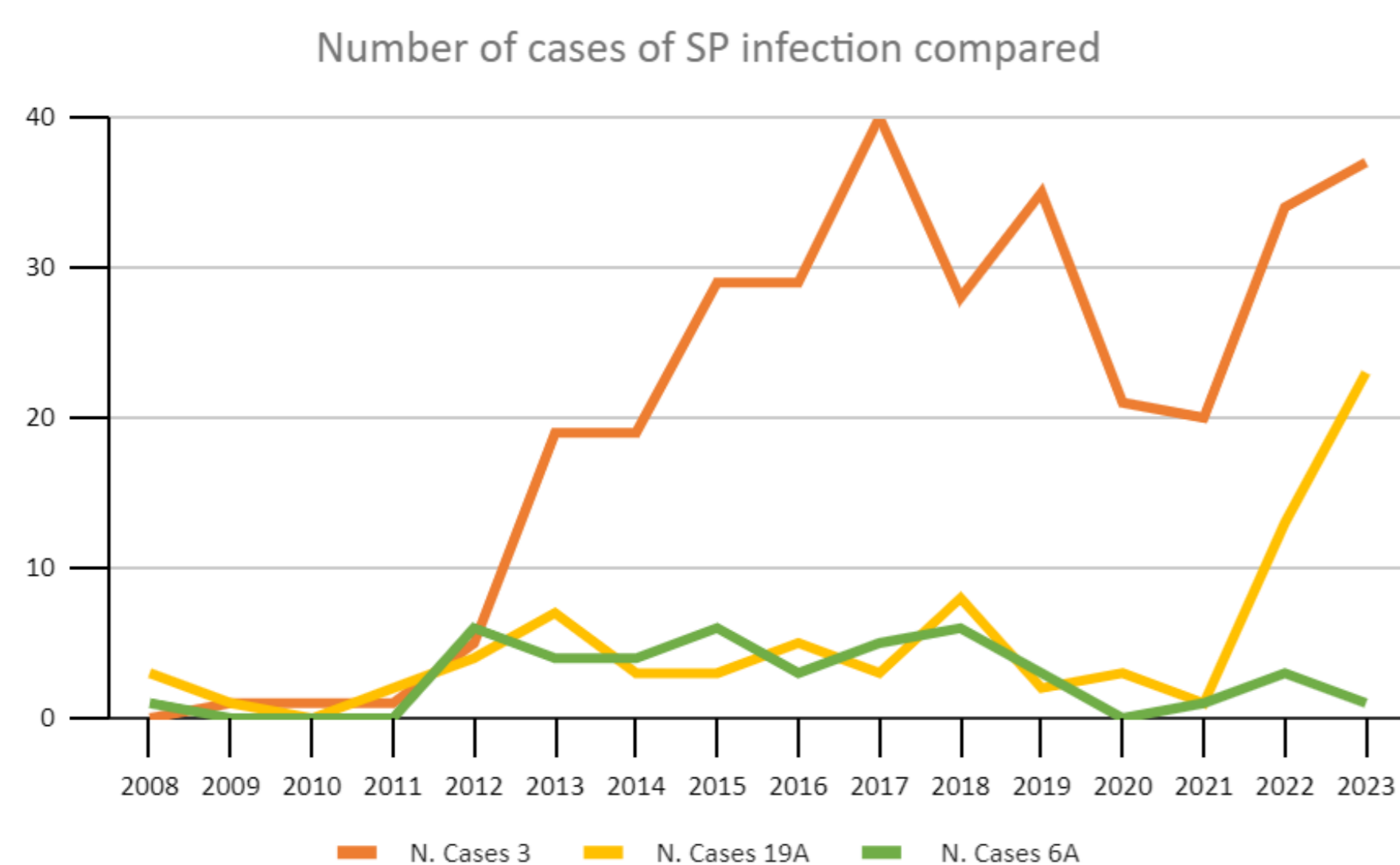
MATERIALS AND METHODS

SP belonging to serogroups 3, 6A and 19A received by the Regional Reference Center between January 1, 2008 and November 17, 2023 from various peripheral laboratories distributed throughout the Piedmont region isolated from blood cultures or liquor were examined.

The data on antibiotic sensitivities were obtained from the notification cards, used for the surveillance of invasive diseases, which accompany the bacterial strains.



RESULTS



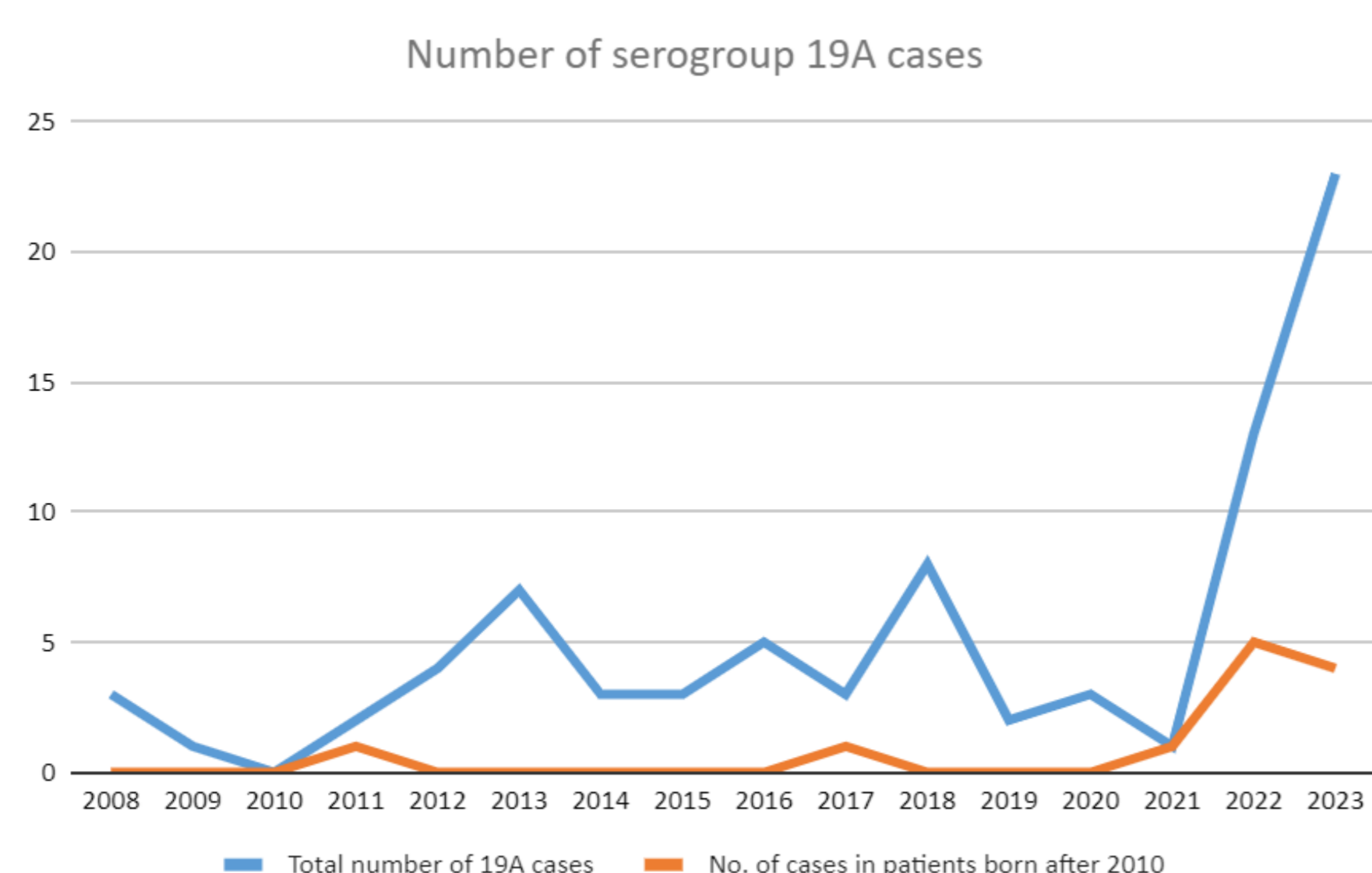
Between 01/01/08 and 17/11/23, as a regional reference laboratory, we identified 443 SP strains belonging to the serotypes examined.

The spread of serogroups 3 and 6A does not appear to increase significantly after the introduction of the new PCV, not even for those born after 2010.

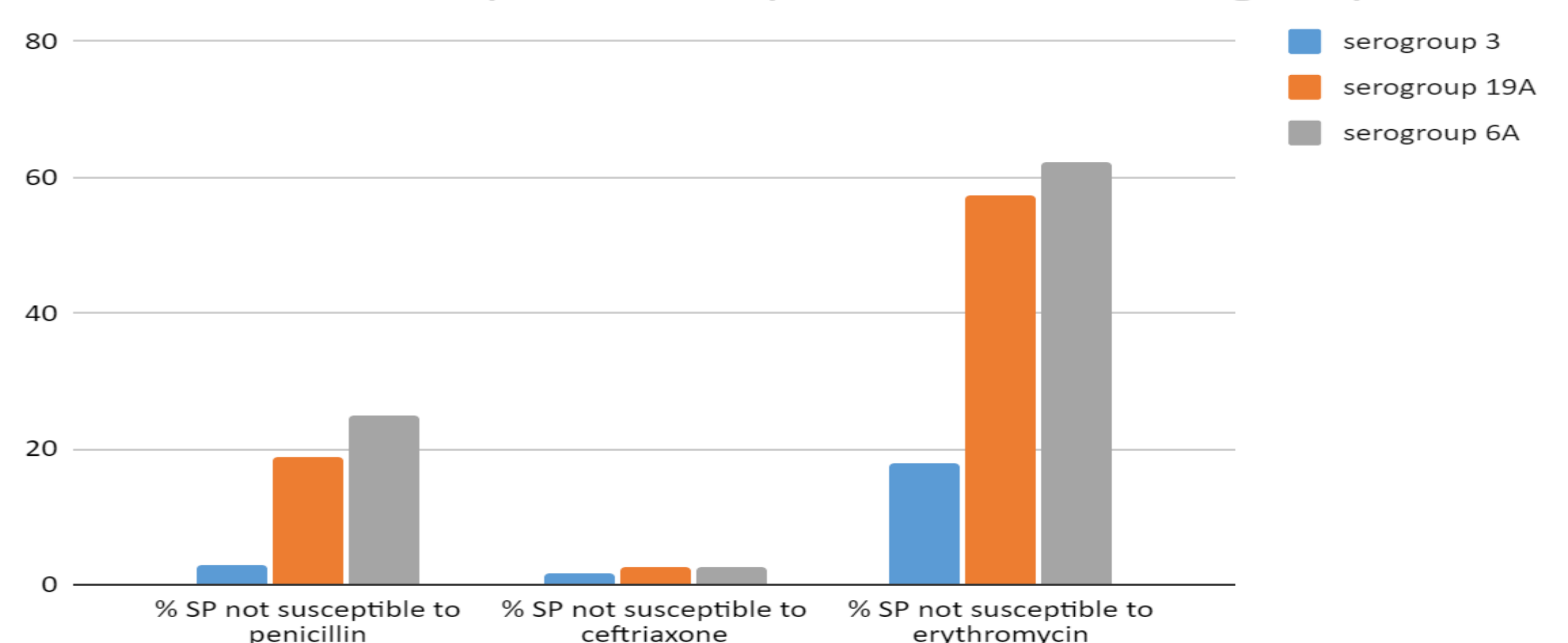
The circulation of serogroup 19A, however, increases significantly from 2022 to today; this data is also confirmed in the cases found in the population born after 2010, the year of the introduction of vaccination in children.

The delay in the increase in cases, compared to the introduction of the new conjugated vaccine, is probably due to the restrictions and precautions taken for airborne infections during the SARS-COV2 pandemic in 2020 and 2021.

Evaluating the antibiotic sensitivities of the serogroups under examination, 0.94% of serogroup 3, 18.6% of serogroup 6A and 11.11% of serogroup 19A were identified as multiresistant SP strains according to ESCMID (penicillin with MIC > 0.06 and erythromycin interpretable as resistant).



Resistance of *Streptococcus pneumoniae* serogroups



CONCLUSIONS

Pneumococcal conjugate vaccines play a key role in preventing invasive pneumococcal disease. However, the increase in cases in Piedmont due to a serotype removed from 2018, in the change of vaccine, should lead to a reassessment of the vaccination policy implemented for this pathogen.