

STREPTOCOCCUS PNEUMONIAE INVASIVE DISEASE IN LATIN AMERICAN AND CARIBBEAN REGION: LABORATORIAL SURVEILLANCE NETWORK (SIREVA II, PAHO/WHO)

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Introduction

Since 1994, the PAHO/WHO and the Canadian International Development Agency (CIDA) have supported a surveillance network in 19 Latin American countries and one Caribbean center to monitor invasive pneumococcal disease to assess data on serotype prevalence and antimicrobial susceptibility for *S. pneumoniae* (Spn).

Objetives

The aim of this study is to present the data from the laboratory based surveillance study of *S. pneumoniae* causing invasive disease in children in ten Latin American countries from 2000 to 2007.

Methods:

Data from 14,217 Spn collected between 2000 and 2007, in 10 countries (Argentina, Brazil, Chile, Colombia, Cuba, Dominican R, Mexico, Paraguay, Uruguay and Venezuela), from ≤ 5 y old with meningitis (38%), pneumonia (32.6%) and other invasive diseases (29.4%) were generated by the national public health laboratories using internationally standardized methodologies. Regional data have been validated by an external quality assurance program coordinated by IAL (Brazil), INS (Colombia) and NCS (Canada). Serotyping was carried out by the Quellung reaction using antiserum from the Statens Serum Institute (Copenhagen, Denmark). The minimal inhibitory concentrations tests (MICs) to penicillin were determined by broth microdilution method according to CLSI guidelines, 2008.

Results:

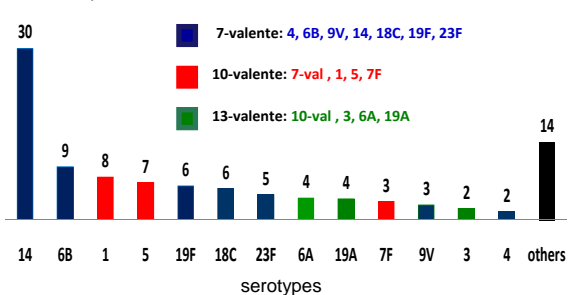
The prevalent serotypes are displayed in the Figure 1. The overall potential impact of the 7-valent (plus-6A), 10-valent (plus-6A) and 13-valent conjugate vaccines in ≤ 5 y old by countries an clinical diagnosis is shown in figures 2 and 3. Figure 4 displays the distribution of prevalent serotypes along the period 2000 to 2007. Using the new CLSI interpretation criteria (2008) for penicillin, the overall susceptible (S) and resistance (R) rates for isolates from meningitis were 59.6% and 40.4%, respectively; for non-meningitis isolates, the overall S, Intermediate (I) and R rates were 93.7%, 4.7% and 1.6%, respectively. (Table 1). Serotype 14 was most frequently associated with penicillin resistance (52%), followed by serotypes 6B, 19F, 23F, 19A, 6A and 9V.

Conclusion:

Regional monitoring of Spn on serotype prevalence and antibiotic susceptibility is crucial to evaluate the impact of conjugate vaccines on disease and on emerging resistance.

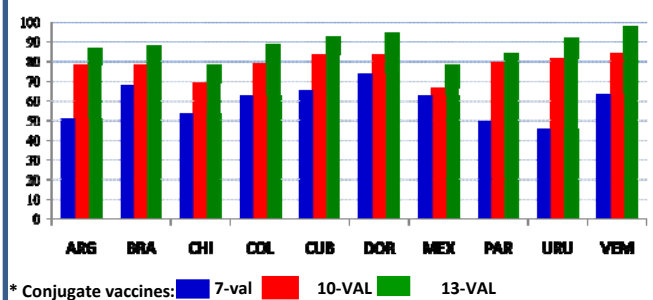
Figures

Figure 1 - Distribution of Serotypes (%) of Invasive *S. pneumoniae* Isolates from ≤ 5 y old in 10 Latin American countries*, Period: 2000 to 2007



* ARG, BRA, CHI, COL, CUB, DOR, MEX, PAR, URU, VEN

Figure 2 - Theoretical Percentage of Pneumococcal Serotypes Coverage by Conjugate Vaccines* Invasive Isolates from ≤ 5 y old, Period: 2000-2007



* Conjugate vaccines: 7-val (blue), 10-val (red), 13-val (green)

Figure 3 - Theoretical Percentage of Serotypes Coverage by Conjugate Vaccines by Clinical Diagnosis; Invasive Isolates from ≤ 5 y old, Period: 2000-2007

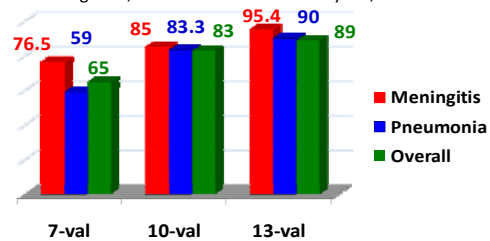


Figure 4 - Distribution of Serotypes (%) Included in the 7-val, 10-val and 13-val Vaccines by Year of Isolation, ≤ 5 y old

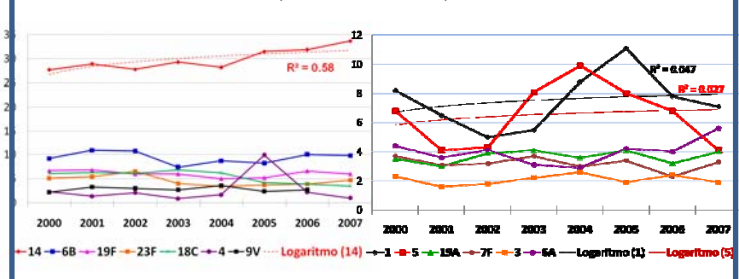


Table 1 - Susceptibility to Penicillin* of Invasive Pneumococcal Isolates from ≤ 5 y old, Period: 2000-2007

Clinical Diagnosis	S	I	R
Meningitis	59.6	-	40.4
Other Clinical Diagnosis	93.7	4.7	1.6

* Criteria CLSI, 2008

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References : http://www.opsecu.org/imagenes/uploads/File/Sireva_2007.pdf; http://www.paho.org/Spanish/AD/THS/EV/labs_Sireva_II_2006.pdf; <http://www.paho.org/Spanish/AD/THS/EV/LABS-Sireva.pdf>; M100-S18. Wayne, PA: Clinical and Laboratory Standards Institute, 2008.

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