Editorial

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# Recent Trends in Invasive Pneumococcal Disease in Korea in the Post-pneumococcal Vaccine Era

*Streptococcus pneumoniae* can cause invasive pneumococcal disease (IPD), including meningitis, pneumonia, and sepsis. IPD is a leading cause of high morbidity and mortality, especially in children and the elderly [1]. The distribution of pneumococcal serotypes causing IPD varies over time, by age group, and by geographic region [2]. Since the development of pneumococcal conjugate vaccines (PCVs), most developed countries have included PCVs in their national immunization program (NIP). The implementation of PCVs targeting specific serotypes has reduced the morbidity and mortality of IPD patients. However, the use of vaccines has resulted in a shift in serotype distribution, termed the "serotype replacement" phenomenon. The prevalence of IPD due to vaccine serotypes (VTs) has decreased, while IPD caused by non-vaccine serotypes (NVTs) has increased since the advent of vaccines [3-5]. Serotype replacement in the post-pneumococcal vaccine era can be accompanied by a change in antibiotic resistance; in the USA, increases in antibiotic-non-susceptible IPD caused by NVTs have been recently observed, although the overall non-susceptible IPD incidence decreased since the introduction of PCVs [6-8]. Emerging NVTs associated with different pneumococcal lineages in different countries have been reported [6, 7]. Therefore, surveillance for pneumococcal epidemiology, including serotypes and antimicrobial resistance distribution, is crucial to understand the effects of vaccination and guide vaccine development and recommendations [1, 2].

In this issue, Kim, *et al.* [9] report the serotype distribution and antimicrobial resistance of *S. pneumoniae* causing IPD in children and adults in Korea between 2017 and 2019. The authors previously surveyed IPD between 2014 and 2016 [10]. In Korea, 10- and 13-valent PCVs (PCV10 and PCV13, respectively) were introduced in the NIP for children <5 years in 2014. The NIP has been providing pneumococcal polysaccharide vaccine (PPSV23) to elderly people aged ≥65 years since May 2013. The previous study by the authors revealed significant changes in the major serotypes in the community; an increase in NVTs, especially in children, was confirmed [10]. In their present study, recent surveillance data from 16 hospitals are presented, and the serotype distribution and antimicrobial resistance changes were compared to previous data [9]. The data reflect the effects of PCV13, which is primarily used since the introduction of the NIP [11]. Data analyses based on age group, serotype, and antibiotic-specific trends in IPD in Korea reveal a remarkable increase in some serotypes as compared with the previous report [10]. A notable trend was the rapid increase in the incidence of serotype 10A in children ≤5 years. This study will be of help to readers seeking a comprehensive insight into the nationwide trends in IPD in Korea. Continuous IPD surveillance will be needed to understand the dynamics of serotype changes and guide vaccination policies.

## AUTHOR CONTRIBUTIONS

Huh HJ and Sung H contributed to manuscript writing and approved the submission of the final manuscript.

## CONFLICTS OF INTEREST

None declared.

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