1100. Notable Serotype Replacement of Invasive *Streptococcus pneumoniae* in Kagoshima, Japan, after the Sequential Introduction of 7-valent and 13-valent Pneumococcal Conjugate Vaccines

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Background. Heptavalent pneumococcal conjugate vaccine (PCV7) was introduced in Japan for voluntary and routine immunization in February 2010 and April 2013, respectively. It was completely replaced by PCV13 in November 2013. The vaccination rate of PCV7/13 in 2013 is estimated to be approximately 90% in our district. Although ACIP recommended a single supplemental dose for all children aged 14-59 months who have received 4 doses of PCV7 or another age-appropriate, it was not implemented as the routine immunization program in Japan. This study evaluates annual changes in the incidence of invasive pneumococcal disease (IPD) and the distribution of serotypes in Kagoshima, Japan.

Methods. Prospective, population-based, active surveillance of IPD in children was performed in Kagoshima, Japan, from 2008 through 2014. Pneumococci isolated from blood or cerebrospinal fluid of IPD patients were serotyped using the conventional Quellung reaction.

Results. Overall, 62 IPD cases were recorded. The annual total incidences of IPD in children < 5 years of age per 100,000 population were as follows: 2008, 10.7; 2009, 9.3; 2010, 14.7; 2011, 12.0; 2012, 6.7; and 2013, 16.0. The tentative incidence in 2014 is 40.0 (10 cases) as of end-April. Incidence of IPD caused by PCV7 serotypes during the period 2010-2011 vs 2013-2014 April decreased by 88%. On the other hand, incidence of IPD caused by PCV13 additional serotypes drastically increased: 2008-2009, 0; 2010-2012, 2.2; 2013-2014, 12.0. Serotype 19A accounted for 83.3% (15/18) of PCV13 serotypes. Furthermore, incidence of IPD caused by non-PCV13 serotypes also rapidly increased: 2008-2012, 1.3; 2013-2014, 8.0. Serotype 24F accounted for 50.0% (4/8) of non-PCV13 serotypes in 2013/2014.

Conclusion. The incidence of IPD in children < 5 years of age declined in 2012 after the introduction of PCV7; however, it increased prominently in 2013/2014, although PCV7 was replaced by PCV13. The increase is due to the notable serotype replacement of invasive *Streptococcus pneumoniae* and partly due to the low vaccination rate of PCV13 supplemental dose for children who have received 4 doses of PCV7. Implementation of the supplemental dose of PCV13 in Japan and a new global vaccine strategy targeting non-PCV13 serotypes are needed to prevent and control IPD.

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