A longitudinal analysis of pneumococcal vaccine serotypes in pneumonia patients in Germany

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In Germany, the recently approved 20-valent pneumococcal conjugate vaccine had a substantially higher coverage against pneumonia in adults than the 13-valent vaccine, while the coverage gap compared to the 23-valent polysaccharide vaccine was small https://bit.ly/3q4skov

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To the Editor:

Pneumococcal infections are globally the most frequent vaccine-preventable cause of death [1], and community-acquired pneumonia (CAP) caused by *Streptococcus pneumoniae* is the main burden of pneumococcal disease in the elderly [2]. Since respiratory and blood cultures often remain negative in hospitalised patients with pneumococcal CAP due to prior antibiotic treatment, most cases are detected by the pneumococcal urinary antigen test (PUAT; BinaxNOW *S. pneumoniae*) [2, 3]. As the PUAT does not allow serotype discrimination, data on serotype distribution in adult non-bacteraemic pneumococcal CAP patients are sparse [4]. Pneumococcal conjugate vaccines (PCVs), which were primarily developed for vaccination of infants under 2 years of age, have significantly decreased invasive pneumococcal diseases worldwide in all age groups by herd protection effects [5, 6]. However, serotype replacement, *i.e.* replacement of vaccine serotypes by non-vaccine serotypes, has decreased the serotype coverage of PCVs over time [6, 7]. For Germany, we have described earlier the distribution of vaccine serotypes covered by the first but no longer available 7-valent pneumococcal conjugate vaccine (PCV7) and the 13-valent conjugate vaccine (PCV13) between 2002 and 2016 in adult patients with CAP enrolled into the prospective multicentre study CAPNETZ [8, 9]. PCV7 was replaced by either the 10-valent conjugate vaccine or, mainly, PCV13 in the German infant vaccination programme in 2010. However, PCV10 held the smallest market share of only 8% of pneumococcal vaccines in Germany in 2018 [10]. In adults, the German Standing Committee on Immunization (STIKO) recommends the 23-valent pneumococcal polysaccharide vaccine (PPV23) as routine pneumococcal vaccination for all adults of 60 years and above and for all patients with defined chronic comorbidities predisposing to pneumococcal disease, regardless of age. Moreover, since 2016, sequential vaccination with PCV13 followed by PPV23 is recommended for

German adults at high risk for pneumococcal disease, including individuals with immunosuppression, chronic liver disease, chronic kidney disease and individuals with cerebrospinal fluid leaks or cochlear implants [11]. Recently, a 15-valent (PCV15) and a 20-valent conjugate vaccine (PCV20) have been licensed for the adult indication by the US Food and Drug Administration and are under evaluation by the European Medicines Agency [12, 13]. PCV15 contains all serotypes of PCV13 plus serotype 22F and 33F and PCV 20 includes PCV13 serotypes plus serotypes 8, 10A, 11A, 12F, 15B, 22F and 33F.