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► **To cite this version:**

Ala-Eddine Deghmane, Muhamed-Kheir Taha. FAILURES OF HAEMOPHILUS INFLUENZAE B CONJUGATE VACCINES IN AGE- APPROPRIATELY VACCINATED CHILDREN UNDER 5 YEAR-OLD: FRANCE, 2017-2024. 17th EMGM Congress, European Meningococcal and Haemophilus Disease Society, May 2025, Agios Nikolaos, Crete, Greece. pp.51. <pasteur-05103354>

HAL Id: pasteur-05103354

<https://pasteur.hal.science/pasteur-05103354v1>

Submitted on 9 Jun 2025

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048. FAILURES OF *HAEMOPHILUS INFLUENZAE* B CONJUGATE VACCINES IN AGE-APPROPRIATELY VACCINATED CHILDREN UNDER 5 YEAR-OLD: FRANCE, 2017-2024

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Introduction: Despite the effectiveness and the high coverage rate of *Haemophilus influenzae* serotype b (Hib) conjugate vaccines, invasive Hib disease are reported among vaccinated children. This study describes clinical, microbiological and immunological features of invasive Hib disease among vaccine failure children < 5-y-olds identified between 2017-2024 in France.

Methods: A total of 268 Hib isolates were analysed at the National Reference Centre for *H. influenzae* that were analysed by whole genome sequencing. Sera at the admission and convalescent phases were obtained from vaccine failure children <5 years. Specific *H. influenzae* b IgG ELISA Kit was used to quantify anti-polyribosyl-ribitol phosphate (PRP) IgG antibodies. Functionality was addressed by opsono-phagocytosis and complement deposition assays.

Results: Among 268 identified Hib cases, 73.5% occurred in children < 5-year-olds. All these isolates belong to the clonal complex 6. Of 171 children <5-year-olds with known vaccine status, 84.0% received at least one vaccine dose and 31.6% cases were TVFs. Most vaccine failures children were lacking sufficient level of functional IgG anti-PRP antibodies at the acute phase of the disease to sustain long-term protection. This level increased markedly above the protective concentration of 1.0 mg/L in convalescent phase-sera.

Conclusions: These results clearly suggest that Hib vaccine failures in children were mostly associated with low titers of anti-PRP IgG suggesting that only 2 doses (primary schedule) and/or the absence of a booster during the second year of life may be questioned. Surveillance of cases and monitoring of titres need to be continued to inform future vaccination Policy.