

**Table S2: Serotype coverage for phenotypic measurements.**

Attribute	Serotypes
Neutrophil resistance	1, 4, 5, 6A/C, 6B, 7F, 9N, 9V, 11A, 14, 18C, 19A, 19F, 23F
Encapsulation	1, 4, 5, 6A/C, 6B, 7F, 9N, 9V, 11A, 14, 18C, 19A, 19F, 23F, 35B
Metabolic burden	1, 2, 3, 4, 5, 6A/C, 6B, 7A, 7B, 7F, 8, 9A, 9L, 9N, 9V, 10A, 10F, 11A, 11B, 11C, 11F, 12A, 12F, 13, 14, 15A, 15B, 15C, 16F, 17A, 17F, 18A, 18B, 18C, 18F, 19A, 19B, 19C, 19F, 20, 22F, 23F, 27, 29, 31, 32A, 32F, 33B, 33F, 34, 35A, 35B, 37, 43
Invasiveness	1, 3, 4, 5, 6A/C, 6B, 7F, 8, 9A, 9N, 9V, 10A, 11A, 12F, 13, 14, 15A, 15B, 15C, 16F, 17F, 18B, 18C, 19A, 19F, 20, 21, 22F, 23A, 23B, 23F, 31, 33F, 35F, 37, 38
Surface charge	1, 2, 3, 4, 5, 6A/C, 6B, 7A, 7B, 7F, 8, 9A, 9L, 9N, 9V, 10A, 10F, 11A, 11C, 11F, 12A, 12F, 13, 14, 15A, 15B, 15C, 16F, 17A, 17F, 18A, 18B, 18C, 18F, 19A, 19B, 19C, 19F, 20, 22F, 23F, 27, 29, 31, 32A, 32F, 33B, 33F, 34, 35A, 35B, 37, 43
IPD CFR <sup>1</sup>	1, 2, 3, 4, 5, 6A/C, 6B, 7F, 8, 9A, 9N, 9V, 10A, 11A, 12A, 12F, 13, 14, 15A, 15B, 15C, 16F, 17F, 18C, 19A, 19F, 20, 22F, 23A, 23F, 24F, 31, 33F, 34, 35B, 35F, 38

<sup>1</sup>IPD CFR: serotype-specific 30-day case-fatality ratio during invasive pneumococcal disease episodes