

# Rise in Group W Meningococcal Carriage in University Students, United Kingdom

## Technical Appendix

**Technical Appendix Table 1.** Characteristics of meningococcal carriage in first-year university students, University of Nottingham, UK, 2015–16\*

| Time point | Carriage rate    | Genogroup                           |                                |                                     |                                |                                     |                                |                                     |                                |                                     |                                |                                     |                                |
|------------|------------------|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|
|            |                  | Capsule null locus                  |                                | Nongroupable†                       |                                | B                                   |                                | Y                                   |                                | W‡                                  |                                | Non-BYW                             |                                |
|            |                  | No. of isolates (%) carried strains | % of all participants (95% CI) | No. of isolates (%) carried strains | % of all participants (95% CI) | No. of isolates (%) carried strains | % of all participants (95% CI) | No. of isolates (%) carried strains | % of all participants (95% CI) | No. of isolates (%) carried strains | % of all participants (95% CI) | No. of isolates (%) carried strains | % of all participants (95% CI) |
| SEP        | 110/769<br>(14%) | 32<br>(29.1)                        | 4.2<br>(2.8–5.6)               | 9<br>(8.2)                          | 1.2<br>(0.4–1.9)               | 25<br>(22.7)                        | 3.3<br>(2.0–4.5)               | 14<br>(12.7)                        | 1.8<br>(0.88–2.8)              | 5<br>(4.5)                          | 0.7<br>(0.1–1.2)               | 25<br>(22.7)                        | 3.3<br>(2.0–4.5)               |
| NOV        | 136/353<br>(39%) | 32<br>(23.5)                        | 9.1§<br>(6.1–12.1)             | 9<br>(6.6)                          | 2.5<br>(0.9–4.2)               | 30<br>(22.1)                        | 8.5§<br>(5.6–11.4)             | 8<br>(5.9)                          | 2.3<br>(0.7–3.8)               | 24<br>(17.6)                        | 6.8§<br>(4.2–9.4)              | 33<br>(24.3)                        | 9.3§<br>(6.3–12.4)             |
| MAR        | 133/288<br>(46%) | 46<br>(34.6)                        | 16.0§<br>(11.7–20.2)           | 5<br>(3.8)                          | 1.7<br>(0.2–3.2)               | 17<br>(12.8)                        | 5.9<br>(3.2–8.6)               | 11<br>(8.3)                         | 3.8<br>(1.6–6.0)               | 23<br>(17.3)                        | 8.0§<br>(4.9–11.1)             | 31<br>(23.3)                        | 10.8§<br>(7.2–14.3)            |

\*CI = confidence interval

†Isolates lacking *ctrA*

‡Overall, of the 52 genogroup W isolates, 47 (90%) were serotype of pe 2a and 32 (62%) expressed serogroup W capsule. In September, of the W:2a isolates, 2/4 (50%) expressed serogroup W capsule. In November, of the W:2a isolates, 12/23 (52%) expressed serogroup W capsule. In March, the W:2a isolates, 15/20 (75%) expressed serogroup W capsule.

§Statistically significant difference compared with genogroup-specific carriage rate in September ( $p < 0.001$ ).

**Technical Appendix Table 2.** MenW carriers in each of 5 dormitories and their respective MenACWY vaccination status, University of Nottingham, UK, 2015–16

| Time point* | MenACWY vaccination status† | Dormitory |          |         |          |         |          |         |          |         |          | Total                    |                            |
|-------------|-----------------------------|-----------|----------|---------|----------|---------|----------|---------|----------|---------|----------|--------------------------|----------------------------|
|             |                             | A         |          | B       |          | C       |          | D       |          | E       |          | No. (%) of MenW carriers | No. (%) of persons sampled |
| NOV         | Vaccinated                  | 3 (50)    | 45 (69)  | 4 (80)  | 50 (78)  | 2 (50)  | 52 (68)  | 3 (75)  | 43 (57)  | 4 (80)  | 67 (93)  | 16 (67)‡                 | 257 (73)                   |
|             | Nonvaccinated               | 3 (50)    | 18 (28)  | 1 (20)  | 12 (19)  | 2 (50)  | 24 (31)  | 1 (25)  | 31 (41)  | 1 (20)  | 5 (7)    | 8 (33)§                  | 90 (25)                    |
|             | Unassigned¶                 | 0         | 2 (3)    | 0       | 2 (3)    | 0       | 1 (1)    | 0       | 1 (1)    | 0       | 0        | 0                        | 6 (2)                      |
|             | Total                       | 6 (100)   | 65 (100) | 5 (100) | 64 (100) | 4 (100) | 77 (100) | 4 (100) | 75 (100) | 5 (100) | 72 (100) | 24 (100)                 | 353 (100)                  |
| MAR         | Vaccinated                  | 9 (100)   | 50 (79)  | 3 (75)  | 43 (65)  | 4 (80)  | 57 (77)  | 3 (100) | 24 (65)  | 2 (100) | 39 (81)  | 21 (91)#                 | 213 (74)                   |
|             | Nonvaccinated               | 0         | 13 (21)  | 1 (25)  | 23 (35)  | 1 (20)  | 17 (23)  | 0       | 13 (35)  | 0       | 9 (19)   | 2 (9)**                  | 75 (26)                    |
|             | Total                       | 9 (100)   | 63 (100) | 4 (100) | 66 (100) | 5 (100) | 74 (100) | 3 (100) | 37 (100) | 2 (100) | 48 (100) | 23 (100)                 | 288 (100)                  |

\*Students at the September 2015 time point were recruited during registration and are not shown. Of these, 76/769 (10%) were not living in dormitories. The carriage rate for this specific group (9.2% [95% CI = 2.7%–15.7%]) was lower than that for students living in dormitories (14.9% [95% CI = 12.2%–17.5%]), but the difference was not statistically significant ( $p > 0.05$ ).

†Students received MenACWY vaccine before or during registration (September 2015).

‡Of these, 8/16 (50%) expressed serogroup W capsular polysaccharide.

§Of these, 5/8 (63%) expressed serogroup W capsular polysaccharide.

¶Vaccination history unavailable.

#Of these, 15/21 (71%) expressed serogroup W capsular polysaccharide.

\*\*Of these, 1/2 (50%) expressed serogroup W capsular polysaccharide.