**Appendix**

Supplementary Questionnaire. Enhanced Enteric Fever Questionnaire****

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Supplementary Table 1. Enteric fever incidence rates per 100,000 person-years described by IMD, sex and age (n=1412).

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| --- | --- |
|   | IMD Quintile (95% CI1) |
|   | 1 (most deprived) | 2 | 3 | 4 | 5 (least deprived) | Total |
| Total | 0.83(0.76, 0.91) | 0.84(0.77, 0.92) | 0.48(0.43, 0.54) | 0.34(0.29, 0.39) | 0.32(0.28, 0.37) | 0.57(0.54, 0.60) |
| Sex |   |   |   |   |   |   |
| Females | 0.81(0.71, 0.92) | 0.83(0.73, 0.94) | 0.45(0.38, 0.54) | 0.32(0.26, 0.39) | 0.30(0.28, 0.42) | 0.55(0.51, 0.59) |
| Males | 0.86(0.75, 0.97) | 0.85(0.75, 0.97) | 0.51(0.43, 0.61) | 0.36(0.29, 0.44) | 0.34(0.28, 0.42) | 0.59(0.55, 0.64) |
| Age |   |   |   |   |   |   |
| 0-4 | 1.07(1.04, 1.77) | 0.84(0.57, 1.19) | 0.69(0.43, 1.04) | 0.31(0.14, 0.59) | 0.26(0.10, 0.53) | 0.69(0.57, 0.82) |
| 5-9 | 1.37(1.04, 1.77) | 1.30(0.95, 1.72) | 1.02(0.70, 1.43) | 0.58(0.34, 0.91) | 0.41(0.22, 0.70) | 0.97(0.83, 1.13) |
| 10-14 | 0.89(0.61, 1.25) | 1.12(0.78, 1.55) | 0.55(0.31, 0.89) | 0.38(0.19, 0.67) | 0.32(0.15, 0.59) | 0.66(0.54, 0.80) |
| 15-24 | 1.06(0.84, 1.32) | 1.28(1.04, 1.57) | 0.75(0.56, 1.00) | 0.67(0.48, 0.91) | 0.65(0.46, 0.90) | 0.91(0.81, 1.02) |
| 25-44 | 1.04(0.89, 1.20) | 1.15(1.00, 1.33) | 0.67(0.55, 0.82) | 0.53(0.41, 0.67) | 0.61(0.48, 0.77) | 0.83(0.77, 0.90) |
| 45-64 | 0.54(0.42, 0.70) | 0.47(0.36, 0.60) | 0.27(0.19, 0.37) | 0.21(0.14, 0.25) | 0.16(0.11, 0.24) | 0.32(0.28, 0.36) |
| 65+ | 0.16(0.08, 0.28) | 0.18(0.10, 0.30) | 0.12(0.06, 0.21) | 0.08(0.04, 0.15) | 0.08(0.03, 0.14) | 0.11(0.08, 0.15) |
| 1-95% CI were calculated using Byar approx. Poisson |

Supplementary Table 2. Enteric fever incidence rates per 100,000 person-years described by ethnicity, sex and age (n=1412).

|  |  |
| --- | --- |
|   | Ethnicity (95% CI1) |
|   | Bangladeshi | Black (African/Caribbean)  | Indian  | Pakistani | Other/Other Asian | White (British/Other) | Total |
| Total | 5.68 (4.74, 6.76) | 0.70 (0.54, 0.89) | 7.81(7.18, 8.49) | 9.89(9.08, 10.75) | 0.78(0.64, 0.93) | 0.07(0.06, 0.08) | 0.57(0.54, 0.60) |
| Sex |   |   |   |   |   |   |   |
| Females | 5.27(3.99, 6.83) | 0.64(0.44, 0.91) | 7.96(7.05, 8.96) | 9.70(8.57, 10.94) | 0.87(0.70, 1.11) | 0.06(0.05, 0.08) | 0.54(0.50, 0.58) |
| Males | 6.06(4.73, 7.66) | 0.76(0.52, 1.06) | 7.67(6.79, 8.63) | 10.07(8.94, 11.29) | 0.69(0.51, 0.90) | 0.08(0.06, 0.09) | 0.59(0.55, 0.63) |
| Age |   |   |   |   |   |   |   |
| 0-4 | 2.74(1.10, 5.65) | 0.23(0.03, 0.82) | 6.25(4.25, 8.87) | 10.19(7.88, 12.96) | 0.51(0.23, 0.96) | 0.01(0.00, 0.04) | 0.66(0.55, 0.80) |
| 5-9 | 6.69(3.90, 10.72) | 0.77(0.28, 1.67) | 14.25(10.82, 18.42) | 13.31(10.55, 16.57) | 0.58(0.25, 1.15) | 0.01(0.00, 0.04) | 1.08(0.06, 1.70) |
| 10-14 | 8.44(5.08, 13.18) | 0.27(0.03, 0.99) | 6.11(3.87, 9.17) | 10.04(7.47, 13.19) | 0.57(0.23, 1.17) | 0.02(0.01, 0.07) | 0.64(0.53, 0.78) |
| 15-24 | 5.81(3.72, 8.64) | 0.56(0.24, 1.10) | 8.61(6.89, 10.61) | 12.01(9.92, 14.42) | 0.83(0.53, 1.23) | 0.15 (0.11, 0.20) | 0.82(0.73, 0.92) |
| 25-44 | 5.36(3.87, 7.25) | 0.73(0.46, 1.10) | 8.50(7.44, 9.67) | 9.37(8.06, 10.82) | 1.09(0.82, 1.42) | 0.12(0.09, 0.15) | 0.79(0.73, 0.86) |
| 45-64 | 6.75(3.77, 11.13) | 1.23(0.77, 1.87) | 6.14(4.95, 7.54) | 7.93(5.99, 10.29) | 0.65(0.36, 1.09) | 0.04(0.02, 0.06) | 0.31(0.27, 0.36) |
| 65+ | 3.62(0.73, 10.57) | 0.35(0.04, 1.25) | 5.39(3.66, 7.65) | 2.02(0.65, 4.71) | 0.00 (0.00, 0.00) | 0.03(0.02, 0.06) | 0.12(0.09, 0.16) |
| 1-95% CI were calculated using Byar approx. Poisson |

Supplementary Table 3. Enteric fever incidence rates per 100,000 person-years described by ethnicity and IMD (n=1412).

|  |  |
| --- | --- |
|   | Ethnicity (95% CI1) |
|   | Bangladeshi | Black (African/Caribbean)  | Indian  | Pakistani | Other/Other Asian | White (British/Other) |
| IMD Quintile |   |   |   |   |   |   |
| 1 (most deprived) | 4.42 (3.21, 5.93) | 0.43 (0.24, 0.72) | 7.43 (6.05, 9.04) | 7.82 (6.81, 8.93) | 0.57 (0.37, 0.84) | 0.05 (0.03, 0.07) |
| 2 | 6.03 (4.34, 8.15) | 0.49 (0.27, 0.80) | 8.11 (6.89, 9.48) | 11.40 (9.69, 13.32) | 0.59 (0.39, 0.86) | 0.07 (0.05, 0.10) |
| 3 | 4.54 (2.34, 7.92) | 0.53 (0.23, 1.04) | 7.77 (6.46, 9.27) | 9.09 (7.04, 11.54) | 0.48 (0.28, 0.77) | 0.04 (0.02, 0.06) |
| 4 | 5.07 (2.03, 10.45) | 0.81 (0.29, 1.76) | 5.51 (4.23, 7.05) | 9.62 (6.84, 13.15) | 0.56 (0.31, 0.92) | 0.07 (0.05, 0.09) |
| 5 (least deprived) | 11.48 (5.50, 21.11) | 0.92 (0.25, 2.35) | 6.48 (4.96, 8.30) | 10.42 (6.92, 15.06) | 0.50 (0.25, 0.89) | 0.08 (0.06, 0.11) |
| 1-95% CI were calculated using Byar approx. Poisson |

Supplementary Figure 1. Individuals travelling abroad of Indian, Pakistani, White (British/Other) and total ethnicities, grouped by reason for travelling (A) and grouped by advice seeking pattern (B) (n=1412).



Supplementary Figure 2. Individuals travelling abroad from each IMD quintile and total IMD, grouped by reason for travelling (A) and grouped by advice seeking pattern (B) (n=1412).

Supplementary Table 4. Negative binomial regression models with case number as an outcome, ethnicity and IMD as explanatory variables and person-years as an offset (n=1412).

|  |  |  |
| --- | --- | --- |
|  | IMD and ethnicity only Model | IMD, ethnicity and IMD-ethnicity interaction Model |
| Variable | Incidence risk ratio(95% CI) | p-value1 | Incidence risk ratio(95% CI) | p-value |
| Ethnicity |  |  |  |  |
| White (British/Other) | Ref |  | Ref |  |
| Bangladeshi | 87.64 (68.09-112.81) | <0.001\*\*\* | 94.20 (55.00, 161.33) | <0.001\*\*\* |
| Pakistani | 154.39 (127.13, 187.50) | <0.001\*\*\* | 166.58 (104.22, 266.26) | <0.001\*\*\* |
| Indian | 117.88 (97.57, 142.42) | <0.001\*\*\* | 158.36 (96.97, 258. 63) | <0.001\*\*\* |
| Black (African/Caribbean) | 8.56 (6.15, 11.93) | <0.001\*\*\* | 9.24 (4.70, 18.19) | <0.001\*\*\* |
| Other/Other Asian | 8.98 (6.92, 11.65) | <0.001\*\*\* | 12.15 (6.72, 21.95) | <0.001\*\*\* |
| IMD Quintile |  |  |  |  |
| 1 (most deprived) | Ref |  | Ref |  |
| 2 | 1.31 (1.14, 1.50) | <0.001\*\*\* | 1.50 (0.84, 2.66) | 0.170 |
| 3 | 1.10 (0.93, 1.29) | 0.259 | 0.78 (0.41, 1.50) | 0.459 |
| 4 | 1.05 (0.87, 1.27) | 0.611 | 1.42 (0.81, 2.51) | 0.223 |
| 5 (least deprived) | 1.23 (1.02, 1.50) | 0.031\* | 1.76 (1.02, 3.03) | 0.043\* |
| IMD-Ethnicity interaction |  |  |  | 0.14482 |
| 1-\*p<0.05 \*\*p<0.01 \*\*\*p<0.0012-Wald’s test with significance level at p<0.05. |

Supplementary Table 5. Proportion of cases from each ethnicity in each IMD quintile (n=1412).

|  |  |
| --- | --- |
|  | IMD Quintile (%) |
| Ethnicity | 1 | 2 | 3 | 4 | 5 | Total |
| Bangladeshi | 44 (38.3) | 42 (36.5) | 12 (10.4) | 7 (6.1) | 10 (8.7) | 115 (100.0) |
| Black (African/Caribbean) | 15 (31.3) | 15 (31.3) | 8 (16.7) | 6 (12.5) | 4 (8.3) | 48 (100.0) |
| Indian | 100 (19.8) | 158 (31.2) | 123 (24.3) | 63 (12.5) | 62 (12.3) | 506 (100.0) |
| Other/Other Asian | 26 (26.8) | 28 (28.9) | 17 (17.5) | 15 (15.5) | 11 (11.3) | 97 (100.0) |
| Pakistani | 216 (42.5) | 158 (31.1) | 67 (13.2) | 39 (7.7) | 28 (5.5) | 508 (100.0) |
| White (British/Other) | 19 (13.8) | 30 (21.7) | 17 (12.3) | 32 (23.2) | 40 (29.0) | 138 (100.0) |
| Total | 420 (29.8) | 431 (30.5) | 244 (17.3) | 162 (11.5) | 155 (11.0) | 1412 (100.0) |

Supplementary Table 6. Model 3 repeated for 3 outcomes (hospital admission, absence from school/work and symptom severity) with interaction terms added: ethnicity-travel abroad, IMD-residence and IMD-ethnicity.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Hospital Admission (n=1412) | Absence from school/work(n=1020) | Symptom Severity(n=1412) |
| Variable | p-value1 |
| Ethnicity-Travel abroad | 0.4442 | 0.714 | 0.148 |
| IMD Quintile-Residence | 0.500 | 0.970 | 0.686 |
| IMD Quintile-Ethnicity | 0.951 | 0.816 | 0.381 |
| 1-\*p<0.05 \*\*p<0.01 \*\*\*p<0.0012-Wald’s test with significance level at p<0.05. |

Supplementary Table 7. Binary and ordinal logistic regressions with ethnicity and IMD as the explanatory variables and hospital admission, absence from school/work and symptom severity as main outcomes.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Unadjusted model (outcomes only) | Model 11 | Model 22 | Model 33 |
| Variable | Odds ratios(95% CI) | p-value4 | Odds ratios(95% CI) | p-value | Odds ratios(95% CI) | p-value | Odds ratios(95% CI) | p-value |
| Outcome: Hospital Admission (n=1342 for Unadjusted Model, Model 1 and Model 2 and n=1143 for Model 3) |
| Ethnicity |  |  |  |  |  |  |  |  |
| White (British/Other) | Ref |  |  |  | Ref |  | Ref |  |
| Bangladeshi | 2.26 (1.18, 4.35) | 0.014\* |  |  | 2.40 (1.23, 4.69) | 0.011\* | 1.81 (0.21, 15.26) | 0.586 |
| Pakistani | 3.98 (2.39, 6.62) | <0.001\*\*\* |  |  | 4.28 (2.50, 7.31) | <0.001\*\*\* | 1.14 (0.30, 4.30) | 0.842 |
| Indian | 2.49 (1.56, 3.97) | <0.001\*\*\* |  |  | 2.79 (1.72, 4.52) | <0.001\*\*\* | 2.30 (0.92, 5.77) | 0.076 |
| Black (African/Caribbean) | 1.81 (0.76, 4.33) | 0.182 |  |  | 2.23 (0.91, 5.45) | 0.078 | 0.60 (0.12, 2.92) | 0.526 |
| Other/Other Asian | 4.00 (1.81, 8.88) | 0.001\*\* |  |  | 4.21 (1.86, 9.43) | <0.001\*\*\* | 2.74 (0.96, 7.81) | 0.060 |
| IMD Quintile |  |  |  |  |  |  |  |  |
| 1 (most deprived) | Ref |  |  |  | Ref |  | Ref |  |
| 2 | 0.65 (0.43, 0.98) | 0.039\* |  |  | 0.63 (0.42, 0.95) | 0.029\* | 0.73 (0.46, 1.18) | 0.198 |
| 3 | 0.77 (0.47, 1.25) | 0.285 |  |  | 0.76 (0.47, 1.25) | 0.286 | 0.76 (0.44, 1.33) | 0.339 |
| 4 | 1.17 (0.65, 2.12) | 0.603 |  |  | 1.15 (0.63, 2.10) | 0.638 | 1.29 (0.63, 2.64) | 0.480 |
| 5 (least deprived) | 0.77 (0.45, 1.32) | 0.342 |  |  | 0.75 (0.44, 1.30) | 0.310 | 0.88 (0.46, 1.67) | 0.688 |
| Sex |  |  |  |  |  |  |  |  |
| Male |  |  | Ref |  | Ref |  | Ref |  |
| Female |  |  | 0.94 (0.69, 1.27) | 0.691 | 0.92 (0.67, 1.25) | 0.589 | 0.92 (0.64, 1.33) | 0.664 |
| Age |  |  |  |  |  |  |  |  |
| 25-44 |  |  | Ref |  | Ref |  | Ref |  |
| 0-4 |  |  | 1.00 (0.54, 1.85) | 0.997 | 0.74 (0.39, 1.39) | 0.348 | 0.79 (0.38, 1.67) | 0.542 |
| 5-9 |  |  | 0.90 (0.54, 1.50) | 0.696 | 0.71 (0.42, 1.20) | 0.206 | 1.08 (0.57, 2.05) | 0.821 |
| 10-14 |  |  | 1.01 (0.54, 1.91) | 0.973 | 0.81 (0.42, 1.55) | 0.523 | 1.07 (0.50, 2.30) | 0.858 |
| 15-24 |  |  | 1.47 (0.92, 2.34) | 0.110 | 1.50 (0.92, 2.42) | 0.101 | 2.16 (1.19, 3.95) | 0.012\* |
| 45-64 |  |  | 0.58 (0.38, 0.89) | 0.012\* | 0.59 (0.38, 0.92) | 0.021 | 0.61 (0.37, 1.00) | 0.048\* |
| 65+ |  |  | 0.51 (0.22, 1.18) | 0.118 | 0.61 (0.26, 1.43) | 0.253 | 0.56 (0.22, 1.45) | 0.234 |
| Residence |  |  |  |  |  |  |  |  |
| Urban |  |  |  |  |  |  | Ref |  |
| Rural |  |  |  |  |  |  | 1.51 (0.56, 4.06) | 0.418 |
| Antibiotic Administration |  |  |  |  |  |  |  |  |
| No |  |  |  |  |  |  | Ref |  |
| Yes |  |  |  |  |  |  | 23.95 (10.04, 57.14) | <0.001\*\*\* |
| Organism |  |  |  |  |  |  |  |  |
| Salmonella Typhi |  |  |  |  |  |  | Ref |  |
| Salmonella Paratyphi A |  |  |  |  |  |  | 0.61 (0.41, 0.90) | 0.014\* |
| Salmonella Paratyphi B |  |  |  |  |  |  | 0.22 (0.06, 0.90) | 0.034\* |
| Presumed region of infection |  |  |  |  |  |  |  |  |
| Africa |  |  |  |  |  |  | Ref |  |
| South Asia (India) |  |  |  |  |  |  | 0.43 (0.09, 2.00) | 0.282 |
| South Asia (Pakistan) |  |  |  |  |  |  | 1.44 (0.23, 8.96) | 0.695 |
| South Asia (Bangladesh) |  |  |  |  |  |  | 0.38 (0.03, 4.54) | 0.447 |
| Europe/North America/Oceania/East Asia |  |  |  |  |  |  | 0.19 (0.02, 1.70) | 0.136 |
| More than one region/continent |  |  |  |  |  |  | 0.67 (0.11, 4.12) | 0.668 |
| South Asia (other countries) |  |  |  |  |  |  | 0.27 (0.04, 1.85) | 0.183 |
| South/Central America |  |  |  |  |  |  | 0.91 (0.11, 7.27) | 0.928 |
| Southeast Asia |  |  |  |  |  |  | 0.58 (0.09, 3.52) | 0.552 |
| Western Asia |  |  |  |  |  |  | 1.29 (0.13, 12.85) | 0.829 |
| Advice sought |  |  |  |  |  |  |  |  |
| No |  |  |  |  |  |  | Ref |  |
| Yes |  |  |  |  |  |  | 1.36 (0.90, 2.05) | 0.141 |
| Reason for travelling |  |  |  |  |  |  |  |  |
| VFR |  |  |  |  |  |  | Ref |  |
| Foreign Visitor |  |  |  |  |  |  | 1 (empty) |  |
| Holiday |  |  |  |  |  |  | 0.85 (0.43, 1.67) | 0.641 |
| New entrant |  |  |  |  |  |  | 0.49 (0.09, 2.68) | 0.408 |
| Other |  |  |  |  |  |  | 4.01 (0.25, 63.55) | 0.324 |
| Business |  |  |  |  |  |  | 1.25 (0.38, 4.16) | 0.713 |
| Outcome: Absence from school/ work (n=974 for Unadjusted Model, Model 1 and Model 2 and n=854 for Model 3) |
| Ethnicity |  |  |  |  |  |  |  |  |
| White (British/Other) | Ref |  |  |  | Ref |  | Ref |  |
| Bangladeshi | 1.52 (0.71, 3.25) | 0.285 |  |  | 1.08 (0.49, 2.38) | 0.857 | 1.14 (0.14, 9.59) | 0.903 |
| Pakistani | 1.11 (0.65, 1.90) | 0.695 |  |  | 0.90 (0.51, 1.58) | 0.704 | 1.87 (0.48, 7.28) | 0.365 |
| Indian | 1.35 (0.79, 2.29) | 0.270 |  |  | 1.23 (0.71, 2.14) | 0.463 | 2.62 (0.86, 8.03) | 0.091 |
| Black (African/Caribbean) | 1.80 (0.56, 5.78) | 0.323 |  |  | 1.66 (0.50, 5.44) | 0.406 | 2.56 (0.17, 38.03) | 0.496 |
| Other/Other Asian | 1.95 (0.86, 4.40) | 0.110 |  |  | 1.73 (0.75, 4.01) | 0.201 | 3.50 (1.01, 12.16) | 0.049 |
| IMD Quintile |  |  |  |  |  |  |  |  |
| 1 | Ref |  |  |  | Ref |  | Ref |  |
| 2 | 1.06 (0.70, 1.60) | 0.794 |  |  | 1.07 (0.69, 1.64) | 0.774 | 0.89 (0.55, 1.43) | 0.632 |
| 3 | 1.00 (0.61, 1.65) | 0.984 |  |  | 1.07 (0.63, 1.80) | 0.811 | 0.85 (0.48, 1.51) | 0.579 |
| 4 | 0.64 (0.38, 1.07) | 0.089 |  |  | 0.61 (0.35, 1.04) | 0.069 | 0.51 (0.27, 0.96) | 0.036 |
| 5 | 0.80 (0.47, 1.37) | 0.425 |  |  | 0.78 (0.45, 1.36) | 0.379 | 0.62 (0.34, 1.16) | 0.136 |
| Sex |  |  |  |  |  |  |  |  |
| Male |  |  | Ref |  | Ref |  | Ref |  |
| Female |  |  | 0.71 (0.52, 0.99) | 0.040\* | 0.70 (0.50, 0.96) | 0.029\* | 0.74 (0.51, 1.07) | 0.108 |
| Age |  |  |  |  |  |  |  |  |
| 25-44 |  |  | Ref |  | Ref |  | Ref |  |
| 0-4 |  |  | 0.30 (0.52, 0.99) | <0.001\*\*\* | 0.31 (0.17, 0.56) | <0.001\*\*\* | 0.29 (0.15, 0.58) | <0.001\*\*\* |
| 5-9 |  |  | 2.64 (1.35, 5.16) | 0.004\*\* | 2.74 (1.39, 5.40) | 0.004\*\* | 2.80 (1.34, 5.84) | 0.006\*\* |
| 10-14 |  |  | 1.94 (0.89, 4.23) | 0.093 | 2.05 (0.93, 4.50) | 0.075 | 2.68 (1.08, 6.69) | 0.034\* |
| 15-24 |  |  | 0.63 (0.42, 0.95) | 0.027\* | 0.67 (0.44, 1.02) | 0.059 | 0.62 (0.39, 0.99) | 0.044\* |
| 45-64 |  |  | 0.66 (0.40, 1.07) | 0.093 | 0.65 (0.40, 1.08) | 0.096 | 0.68 (0.39, 1.20) | 0.184 |
| 65+ |  |  | 0.07 (0.01, 0.25) | <0.001\*\*\* | 0.06 (0.02, 0.23) | <0.001\*\*\* | 0.07 (0.02, 0.30) | <0.001\*\*\* |
| Residence |  |  |  |  |  |  |  |  |
| Urban |  |  |  |  |  |  | Ref |  |
| Rural |  |  |  |  |  |  | 2.50 (0.81, 7.70) | 0.112 |
| Antibiotic Administration |  |  |  |  |  |  |  |  |
| No |  |  |  |  |  |  | Ref |  |
| Yes |  |  |  |  |  |  | 1.12 (0.39, 3.25) | 0.829 |
| Organism |  |  |  |  |  |  |  |  |
| Salmonella Typhi |  |  |  |  |  |  | Ref |  |
| Salmonella Paratyphi A |  |  |  |  |  |  | 0.79 (0.53, 1.17) | 0.240 |
| Salmonella Paratyphi B |  |  |  |  |  |  | 0.68 (0.19, 2.46) | 0.552 |
| Presumed region of infection |  |  |  |  |  |  |  |  |
| Africa |  |  |  |  |  |  | Ref |  |
| South Asia (India) |  |  |  |  |  |  | 1.00 (0.09, 14.04) | 0.998 |
| South Asia (Pakistan) |  |  |  |  |  |  | 1.01 (0.06, 15.95) | 0.994 |
| South Asia (Bangladesh) |  |  |  |  |  |  | 2.31 (0.09, 58.96) | 0.611 |
| Europe/North America/Oceania/East Asia |  |  |  |  |  |  | 0.50 (0.02, 11.41) | 0.663 |
| More than one region/continent |  |  |  |  |  |  | 5.04 (0.18, 138.66) | 0.339 |
| South Asia (other countries) |  |  |  |  |  |  | 0.98 (0.05, 18.15) | 0.991 |
| South/Central America |  |  |  |  |  |  | 1.12 (0.06, 21.91) | 0.941 |
| Southeast Asia |  |  |  |  |  |  | 1.44 (0.10, 22.38) | 0.796 |
| Western Asia |  |  |  |  |  |  | 0.33 (0.02, 6.06) | 0.455 |
| Advice sought |  |  |  |  |  |  |  |  |
| No |  |  |  |  |  |  | Ref |  |
| Yes |  |  |  |  |  |  | 0.86 (0.57, 1.30) | 0.486 |
| Reason for travelling |  |  |  |  |  |  |  |  |
| VFR  |  |  |  |  |  |  | Ref |  |
| Foreign Visitor |  |  |  |  |  |  | 0.57 (0.05, 6.69) | 0.656 |
| Holiday |  |  |  |  |  |  | 2.33 (0.97, 5.59) | 0.058 |
| New entrant |  |  |  |  |  |  | 0.88 (0.15, 5.14) | 0.888 |
| Other |  |  |  |  |  |  | 3.09 (0.74, 12.85) | 0.121 |
| Business |  |  |  |  |  |  |  |  |
| Outcome: Symptom Severity (n=1342 for Unadjusted Model, Model 1 and Model 2 and n=1150 for Model 3) |
| Ethnicity |  |  |  |  |  |  |  |  |
| White (British/Other) | Ref |  |  |  | Ref |  | Ref |  |
| Bangladeshi | 0.65 (0.40, 1.05) | 0.078 |  |  | 0.68 (0.41, 1.11) | 0.125 | 0.44 (0.13, 1.51) | 0.192 |
| Pakistani | 0.53 (0.36, 0.77) | 0.001\*\* |  |  | 0.55 (0.37, 0.82) | 0.003\*\* | 0.74 (0.36, 1.54) | 0.425 |
| Indian | 0.54 (0.37, 0.79) | 0.001\*\* |  |  | 0.56 (0.38, 0.82) | 0.003\*\* | 1.03 (0.56, 1.89) | 0.925 |
| Black (African/Caribbean) | 0.43 (0.22, 0.84) | 0.013\* |  |  | 0.45 (0.23, 0.88) | 0.020\* | 0.69 (0.22, 2.12) | 0.512 |
| Other/Other Asian | 0.53 (0.32, 0.88) | 0.013\* |  |  | 0.52 (0.37, 0.82) | 0.014\* | 0.55 (0.36, 1.54) | 0.068 |
| IMD Quintile |  |  |  |  |  |  |  |  |
| 1 | Ref |  |  |  | Ref |  | Ref |  |
| 2 | 0.86 (0.67, 1.12) | 0.269 |  |  | 0.84 (0.65, 1.09) | 0.192 | 0.85 (0.64, 1.13) | 0.263 |
| 3 | 0.98 (0.71, 1.34) | 0.885 |  |  | 0.97 (0.71, 1.34) | 0.874 | 0.91 (0.64, 1.28) | 0.579 |
| 4 | 0.99 (0.70, 1.42) | 0.976 |  |  | 0.99 (0.69, 1.41) | 0.935 | 0.95 (0.63, 1.42) | 0.786 |
| 5 | 0.84 (0.58, 1.20) | 0.327 |  |  | 0.81 (0.57, 1.17) | 0.258 | 0.75 (0.50, 1.12) | 0.164 |
| Sex |  |  |  |  |  |  |  |  |
| Male |  |  | Ref |  | Ref |  | Ref |  |
| Female |  |  | 1.19 (0.97, 1.46) | 0.089 | 1.21 (0.99, 1.48) | 0.064 | 1.10 (0.88, 1.38) | 0.387 |
| Age |  |  |  |  |  |  |  |  |
| 25-44 |  |  | Ref |  | Ref |  | Ref |  |
| 0-4 |  |  | 0.39 (0.26, 0.58) | <0.001\*\*\* | 0.40 (0.27, 0.61) | <0.001\*\*\* | 0.35 (0.22, 0.55) | <0.001\*\*\* |
| 5-9 |  |  | 0.92 (0.65, 1.29) | 0.628 | 0.97 (0.68, 1.37) | 0.858 | 0.90 (0.62, 1.32) | 0.602 |
| 10-14 |  |  | 0.63 (0.42, 0.95) | 0.028\* | 0.66 (0.44, 0.99) | 0.046\* | 0.58 (0.37, 0.92) | 0.020\* |
| 15-24 |  |  | 1.11 (0.84, 1.47) | 0.454 | 1.10 (0.83, 1.45) | 0.516 | 1.20 (0.88, 1.65) | 0.245 |
| 45-64 |  |  | 0.65 (0.47, 0.89) | 0.007\*\* | 0.64 (0.47, 0.88) | 0.006\*\* | 0.64 (0.45, 0.92) | 0.014\* |
| 65+ |  |  | 0.42 (0.22, 0.81) | 0.009\*\* | 0.40 (0.21, 0.77) | 0.006\*\* | 0.45 (0.21, 0.94) | 0.034\* |
| Residence |  |  |  |  |  |  |  |  |
| Urban |  |  |  |  |  |  | Ref |  |
| Rural |  |  |  |  |  |  | 2.15 (1.11, 4.16) | 0.023\* |
| Antibiotic Administration |  |  |  |  |  |  |  |  |
| No |  |  |  |  |  |  | Ref |  |
| Yes |  |  |  |  |  |  | 1.52 (0.77, 3.01) | 0.230 |
| Organism |  |  |  |  |  |  |  |  |
| Salmonella Typhi |  |  |  |  |  |  | Ref |  |
| Salmonella Paratyphi A |  |  |  |  |  |  | 0.64 (0.50, 0.82) | <0.001\*\*\* |
| Salmonella Paratyphi B |  |  |  |  |  |  | 0.54 (0.22, 1.32) | 0.177 |
| Presumed region of infection |  |  |  |  |  |  |  |  |
| Africa |  |  |  |  |  |  | Ref |  |
| South Asia (India) |  |  |  |  |  |  | 1.25 (0.45, 3.47) | 0.672 |
| South Asia (Pakistan) |  |  |  |  |  |  | 1.80 (0.60, 5.38) | 0.295 |
| South Asia (Bangladesh) |  |  |  |  |  |  | 3.70 (0.83, 16.41) | 0.085 |
| Europe/North America/Oceania/East Asia |  |  |  |  |  |  | 3.48 (0.57, 21.04) | 0.175 |
| More than one region/continent |  |  |  |  |  |  | 2.14 (0.67, 6.85) | 0.198 |
| South Asia (other countries) |  |  |  |  |  |  | 2.10 (0.54, 8.14) | 0.284 |
| South/Central America |  |  |  |  |  |  | 1.72 (0.44, 6.73) | 0.436 |
| Southeast Asia |  |  |  |  |  |  | 1.26 (0.39, 4.06) | 0.695 |
| Western Asia |  |  |  |  |  |  | 3.32 (0.80, 13.63) | 0.096 |
| Advice sought |  |  |  |  |  |  |  |  |
| No |  |  |  |  |  |  | Ref |  |
| Yes |  |  |  |  |  |  | 1.25 (0.97, 1.60) | 0.086 |
| Reason for travelling |  |  |  |  |  |  |  |  |
| VFR  |  |  |  |  |  |  | Ref |  |
| Foreign Visitor |  |  |  |  |  |  | 0.25 (0.06, 1.09) | 0.064 |
| Holiday |  |  |  |  |  |  | 1.52 (0.99, 2.33) | 0.055 |
| New entrant |  |  |  |  |  |  | 1.58 (0.47, 5.26) | 0.459 |
| Other |  |  |  |  |  |  | 0.93 (0.25, 3.45) | 0.912 |
| Business |  |  |  |  |  |  | 2.54 (1.12, 5.60) | 0.026\* |
| 1-Outcome, sex and age group included in the model2-Outcome, explanatory variables, sex and age included in the model3-Outcome, explanatory variables, sex, age, residence, antibiotic administration, presumed region of infection, health advice sought, reason for travelling and organism included in the model4-\*p<0.05 \*\*p<0.01 \*\*\*p<0.001 |

Supplementary Table 8. Binary and ordinal logistic regressions with ethnicity and IMD as the explanatory variables and alternative symptom severity (without multiplicated values) as the main outcome (n=1412).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Unadjusted model (explanatory variables only) | Model 11 | Model 22 | Model 33 |
| Variable | Odds ratios(95% CI) | p-value4 | Odds ratios(95% CI) | p-value | Odds ratios(95% CI) | p-value | Odds ratios(95% CI) | p-value |
| Ethnicity |  |  |  |  |  |  |  |  |
| White (British/Other) | Ref |  |  |  | Ref |  | Ref |  |
| Bangladeshi | 0.65 (0.41, 1.04) | 0.070 |  |  | 0.67 (0.41, 1.08) | 0.100 | 0.68 (0.41, 1.12) | 0.128 |
| Pakistani | 0.61 (0.42, 0.88) | 0.008\*\* |  |  | 0.62 (0.42, 0.91) | 0.015\* | 0.62 (0.41, 0.94) | 0.023\* |
| Indian | 0.60 (0.42, 0.86) | 0.006\*\* |  |  | 0.61 (0.42, 0.88) | 0.008\*\* | 0.63 (0.42, 0.94) | 0.025\* |
| Black (African/Caribbean) | 0.51 (0.27, 0.95) | 0.035\* |  |  | 0.54 (0.29, 1.03) | 0.062 | 0.48 (0.25, 0.92) | 0.028\* |
| Other/Other Asian | 0.72 (0.44, 1.18) | 0.190 |  |  | 0.71 (0.43, 1.17) | 0.179 | 0.71 (0.43, 1.17) | 0.179 |
| IMD Quintile |  |  |  |  |  |  |  |  |
| 1 | Ref |  |  |  | Ref |  | Ref |  |
| 2 | 0.90 (0.70, 1.16) | 0.407 |  |  | 0.86 (0.67, 1.11) | 0.262 | 0.86 (0.67, 1.11) | 0.251 |
| 3 | 0.92 (0.68, 1.25) | 0.589 |  |  | 0.91 (0.67, 1.24) | 0.554 | 0.86 (0.63, 1.17) | 0.325 |
| 4 | 1.03 (0.73, 1.46) | 0.858 |  |  | 1.01 (0.71, 1.44) | 0.937 | 0.94 (0.66, 1.34) | 0.749 |
| 5 | 0.87 (0.61, 1.24) | 0.449 |  |  | 0.84 (0.59, 1.20) | 0.341 | 0.78 (0.54, 1.12) | 0.180 |
| Sex |  |  |  |  |  |  |  |  |
| Male |  |  | Ref |  | Ref |  | Ref |  |
| Female |  |  | 1.18 (0.97, 1.44) | 0.093 | 1.19 (0.98, 1.45) | 0.078 | 1.23 (1.01, 1.50) | 0.043\* |
| Age |  |  |  |  |  |  |  |  |
| 25-44 |  |  | Ref |  | Ref |  | Ref |  |
| 0-4 |  |  | 0.42 (0.29, 0.63) | <0.001\*\*\* | 0.44 (0.29, 0.65) | <0.001\*\*\* | 0.40 (0.27, 0.60) | <0.001\*\*\* |
| 5-9 |  |  | 0.97 (0.69, 1.35) | 0.838 | 1.01 (0.72, 1.43) | 0.936 | 1.01 (0.72, 1.43) | 0.935 |
| 10-14 |  |  | 0.66 (0.44, 0.98) | 0.039\* | 0.68 (0.45, 1.01) | 0.057 | 0.66 (0.44, 1.00) | 0.048\* |
| 15-24 |  |  | 1.14 (0.87, 1.50) | 0.335 | 1.13 (0.86, 1.49) | 0.377 | 1.12 (0.85, 1.47) | 0.423 |
| 45-64 |  |  | 0.63 (0.46, 0.86) | 0.004\*\* | 0.63 (0.46, 0.86) | 0.004\*\* | 0.63 (0.46, 0.86) | 0.004\*\* |
| 65+ |  |  | 0.47 (0.25, 0.87) | 0.017\* | 0.45 (0.24, 0.84) | 0.012\* | 0.45 (0.24, 0.84) | 0.012\* |
| Residence |  |  |  |  |  |  |  |  |
| Urban |  |  |  |  |  |  | Ref |  |
| Rural |  |  |  |  |  |  | 2.16 (1.23, 3.79) | 0.007\*\* |
| Travel Abroad |  |  |  |  |  |  |  |  |
| No |  |  |  |  |  |  | Ref |  |
| Yes |  |  |  |  |  |  | 1.03 (0.64, 1.65) | 0.911 |
| Antibiotic Administration |  |  |  |  |  |  |  |  |
| No |  |  |  |  |  |  | Ref |  |
| Yes |  |  |  |  |  |  | 1.74 (0.97, 3.12) | 0.063 |
| Organism |  |  |  |  |  |  |  |  |
| Salmonella Typhi |  |  |  |  |  |  | Ref |  |
| Salmonella Paratyphi A |  |  |  |  |  |  | 0.68 (0.55, 0.84) | <0.001\*\*\* |
| Salmonella Paratyphi B |  |  |  |  |  |  | 0.72 (0.41, 1.27) | 0.253 |
| 1-Outcome, sex and age group included in the model2-Outcome, explanatory variables, sex and age included in the model3-Outcome, explanatory variables, sex, age, residence, travel abroad, antibiotic administration and organism included in the model4-\*p<0.05 \*\*p<0.01 \*\*\*p<0.001 |