**Appendix (Supplementary Tables and Figures)**

**Table 1A. Main transmission routes of pathogens included in the study.**

|  |  |
| --- | --- |
| **Pathogen** | **Main transmission route** |
| *Campylobacter* | * Foodborne (ingestion of contaminated food and water)
* Some person-to-person transmission
 |
| *Cryptosporidium hominis* | * Waterborne (contamination of recreational and municipal water supplies)
* Occasionally foodborne
 |
| *Cryptosporidium parvum* | * Waterborne (contamination of recreational and municipal water supplies)
* Zoonotic (cattle infections)
* Occasionally foodborne
 |
| *Giardia* | * Waterborne (frequently through ingestion of contaminated water and food)
* Some person-to person transmission
 |
| Norovirus | * Person-to-person transmission
* Contaminated surfaces
 |
| Non-typhoidal *Salmonella* | * Foodborne (ingestion of contaminated food and water)
 |
| *Salmonella* typhi/paratyphi | * Person-to-person (Fecal-oral route via contaminated water*,* undercooked foods, fomites of infected patients)
 |
| *Other Shigella* | * Person-to-person (Fecal-oral route)
 |
| *Shigella flexneri* | * Person-to-person (Fecal-oral route)
* Sexual transmission, especially in men who have sex with men
 |
| *Shigella sonnei* | * Person-to-person (Fecal-oral route)
* Sexual transmission, especially in men who have sex with men
 |

**Table 2A. Descriptive characteristics of study sample.**

|  |  |  |
| --- | --- | --- |
|  |  | **Number of cases% of subtotal** |
|  |  | **All pathogens** | ***Campylobacter*** | ***Cryptosporidium*** | ***Giardia*** | **Norovirus** | **Non-typhoidal*****Salmonella***  | ***Salmonella* typhi/paratyphi** | ***Shigella*** |
| **TOTAL** | 314,381 | 208,016 | 18,743 | 18,114 | 26,361 | 26,361 | 8,690 | 8,096 |
|  |  | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| IMD quintile | 1 (most deprived) | 51,858 | 31,077 | 3,067 | 2,702 | 5,668 | 5,466 | 2,002 | 1,876 |
|  | 16% | 15% | 16% | 15% | 22% | 21% | 23% | 23% |
| 2 | 58,717 | 37,433 | 3,381 | 3,120 | 5,399 | 5,549 | 1,923 | 1,912 |
|  | 19% | 18% | 18% | 17% | 20% | 21% | 22% | 24% |
| 3 | 67,071 | 44,582 | 4,108 | 4,049 | 5,517 | 5,411 | 1,690 | 1,714 |
|  | 21% | 21% | 22% | 22% | 21% | 21% | 19% | 21% |
| 4 | 68,390 | 46,995 | 4,184 | 4,015 | 5,233 | 5,029 | 1,549 | 1,385 |
|  | 22% | 23% | 22% | 22% | 20% | 19% | 18% | 17% |
| 5 (least deprived) | 68,211 | 47,895 | 4,000 | 4,219 | 4,543 | 4,870 | 1,505 | 1,179 |
|  | 22% | 23% | 21% | 23% | 17% | 18% | 17% | 15% |
| Missing | 134 | 34 | 3 | 9 | 1 | 36 | 21 | 30 |
|  | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Sex | Female | 146,397 | 92,902 | 10,588 | 7,667 | 14,527 | 13,166 | 4,182 | 3,365 |
|  | 47% | 45% | 56% | 42% | 55% | 50% | 48% | 42% |
| Male | 167,299 | 114,900 | 8,128 | 10,394 | 11,636 | 13,085 | 4,469 | 4,687 |
|  | 53% | 55% | 43% | 57% | 44% | 50% | 51% | 58% |
| Unknown | 685 | 214 | 27 | 53 | 198 | 110 | 39 | 44 |
|  | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 1% |
| Age (years) | <1 | 2,701 | 917 | 175 | 46 | 674 | 733 | 131 | 25 |
|  | 1% | 0% | 1% | 0% | 3% | 3% | 2% | 0% |
| 1-4 | 25,274 | 11,043 | 3,477 | 1,587 | 3,544 | 3,707 | 1,339 | 577 |
|  | 8% | 5% | 19% | 9% | 13% | 14% | 15% | 7% |
| 5-9 | 12,596 | 5,646 | 2,461 | 841 | 580 | 1,727 | 818 | 523 |
|  | 4% | 3% | 13% | 5% | 2% | 7% | 9% | 6% |
| 10-19 | 19,256 | 12,216 | 2,340 | 686 | 538 | 2,200 | 844 | 432 |
|  | 6% | 6% | 12% | 4% | 2% | 8% | 10% | 5% |
| 20-29 | 41,502 | 27,967 | 3,403 | 2,474 | 901 | 3,933 | 1,365 | 1,459 |
|  | 13% | 13% | 18% | 14% | 3% | 15% | 16% | 18% |
| 30-39 | 36,788 | 23,167 | 3,356 | 3,699 | 930 | 2,886 | 1,038 | 1,712 |
|  | 12% | 11% | 18% | 20% | 4% | 11% | 12% | 21% |
| 40-49 | 35,928 | 25,432 | 1,637 | 3,115 | 875 | 2,710 | 832 | 1,327 |
|  | 11% | 12% | 9% | 17% | 3% | 10% | 10% | 16% |
| 50-59 | 43,263 | 33,391 | 857 | 2,549 | 1,382 | 3,244 | 830 | 1,010 |
|  | 14% | 16% | 5% | 14% | 5% | 12% | 10% | 12% |
| 60-69 | 39,710 | 31,472 | 571 | 1,885 | 1,936 | 2,567 | 701 | 578 |
|  | 13% | 15% | 3% | 10% | 7% | 10% | 8% | 7% |
| 70-79 | 31,346 | 23,979 | 307 | 840 | 3,710 | 1,731 | 489 | 290 |
|  | 10% | 12% | 2% | 5% | 14% | 7% | 6% | 4% |
| ≥80 | 25,450 | 12,511 | 141 | 335 | 11,223 | 838 | 279 | 123 |
|  | 8% | 6% | 1% | 2% | 43% | 3% | 3% | 2% |
| Missing | 567 | 275 | 18 | 57 | 68 | 85 | 24 | 40 |
|  | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Region | East Midlands | 24,503 | 16,608 | 1,709 | 1,449 | 2,101 | 1,850 | 622 | 164 |
|  | 8% | 8% | 9% | 8% | 8% | 7% | 7% | 2% |
| East of England | 33,693 | 22,488 | 2,206 | 1,388 | 3,522 | 2,768 | 844 | 477 |
|  | 11% | 11% | 12% | 8% | 13% | 11% | 10% | 6% |
| London | 38,007 | 21,465 | 1,038 | 1,848 | 3,465 | 5,353 | 1,806 | 3,032 |
|  | 12% | 10% | 6% | 10% | 13% | 20% | 21% | 37% |
| North East | 17,831 | 12,582 | 1,280 | 970 | 1,092 | 1,296 | 410 | 201 |
|  | 6% | 6% | 7% | 5% | 4% | 5% | 5% | 2% |
| North West | 35,807 | 24,439 | 2,453 | 1,831 | 1,979 | 3,394 | 946 | 765 |
|  | 11% | 12% | 13% | 10% | 8% | 13% | 11% | 9% |
| South East | 56,311 | 40,241 | 2,745 | 3,587 | 2,336 | 4,244 | 1,463 | 1,695 |
|  | 18% | 19% | 15% | 20% | 9% | 16% | 17% | 21% |
| South West | 43,306 | 26,893 | 2,601 | 4,127 | 5,871 | 2,492 | 857 | 465 |
|  | 14% | 13% | 14% | 23% | 22% | 9% | 10% | 6% |
| West Midlands | 31,331 | 21,701 | 2,237 | 1,443 | 1,989 | 2,294 | 944 | 723 |
|  | 10% | 10% | 12% | 8% | 8% | 9% | 11% | 9% |
| Yorkshire and The Humber | 33,592 | 21,599 | 2,474 | 1,471 | 4,006 | 2,670 | 798 | 574 |
|  | 11% | 10% | 13% | 8% | 15% | 10% | 9% | 7% |
| Travel abroad | No | 67,209 | 43,211 | 4,139 | 3,851 | 5,034 | 7,002 | 2,317 | 1,655 |
|  | 21% | 21% | 22% | 21% | 19% | 27% | 27% | 20% |
| Yes | 12,743 | 515 | 72 | 95 | 11 | 8,132 | 2,174 | 1,744 |
|  | 4% | 0% | 0% | 1% | 0% | 31% | 25% | 22% |
| Unsure | 234,429 | 164,290 | 14,532 | 14,168 | 21,316 | 11,227 | 4,199 | 4,697 |
|  | 75% | 79% | 78% | 78% | 81% | 43% | 48% | 58% |
| Rural/urban | Urban | 249,802 | 162,179 | 14,313 | 14,227 | 21,962 | 22,378 | 7,402 | 7,341 |
|  | 79% | 78% | 76% | 79% | 83% | 85% | 85% | 91% |
| Rural | 64,445 | 45,803 | 4,427 | 3,878 | 4,398 | 3,947 | 1,267 | 725 |
|  | 20% | 22% | 24% | 21% | 17% | 15% | 15% | 9% |
| Missing | 134 | 34 | 3 | 9 | 1 | 36 | 21 | 30 |
|  | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |



**Figure 1A. Incidence rate per 100,000 person-years by IMD quintile for each pathogen.**