**Supplementary Table 1:** Prevalence and intensity of infection of *S. japonicum* in humans from Hunan and Jiangxi provinces determined by real-time PCR (qPCR)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | **Total n** | **n positive** | **% positive** | **95%CI\*** | **% of total n** | **GMEPG\*\*** | **95%CI** |
|  | **Province** | Jiangxi | 2019 | 36 | 1.78 | 1.21-2.36 | 51.45 | 23.77 | 19.69-28.69 |
|  | Hunan | 1905 | 153 | 8.03 | 6.81-9.25 | 48.55 | 24.78 | 16.88-36.39 |
|  | Combined | 3924 | 189 | 4.82 | 4.15-5.49 | 100.00 | 23.96 | 20.26-28.33 |
|  | **Sex** | Male | 2050 | 98 | 4.78 | 3.86-5.70 | 52.24 | 22.40 | 17.59-28.54 |
|  | Female | 1874 | 91 | 4.86 | 3.88-5.83 | 47.76 | 25.75 | 20.37-32.56 |
|  | **Jiangxi** | Xinhua | 160 | 3 | 1.88 | 0-4.0 | 4.08 | 63.82 | 0.19-20544 |
|  | Dingshan | 192 | 0 | 0.00 | na | 4.89 | 0.00 | na |
|  | Caohui | 245 | 3 | 1.22 | 0-2.61 | 6.24 | 15.15 | 1.29-177.59 |
|  | Dongfang | 302 | 7 | 2.32 | 0.61-4.02 | 7.70 | 14.25 | 7.51-27.03 |
|  | Huangjia | 334 | 7 | 2.10 | 0.55-3.64 | 8.51 | 18.63 | 5.81-59.78 |
|  | Fuqian | 253 | 4 | 1.58 | 0-3.13 | 6.45 | 35.61 | 12.78-99.24 |
|  | Biaoen | 292 | 10 | 3.42 | 1.33-5.52 | 7.44 | 34.68 | 16.29-73.82 |
|  | Huanggin | 241 | 2 | 0.83 | 0-1.98 | 6.14 | 21.29 | 0.01-70606.67 |
|  | **Hunan** | Longwang | 168 | 34 | 20.24 | 14.10-26.38 | 4.28 | 18.17 | 12.59-26.23 |
|  | Xiangjiang | 156 | 29 | 18.59 | 12.42-24.76 | 3.98 | 20.84 | 11.87-36.58 |
|  | Zhangshu | 260 | 21 | 8.08 | 4.74-11.41 | 6.63 | 39.57 | 24.36-64.27 |
|  | Changjiang | 268 | 7 | 2.61 | 0.69-4.53 | 6.83 | 21.29 | 10.81-41.95 |
|  | Ganzhou | 300 | 24 | 8.00 | 4.91-11.09 | 7.65 | 14.84 | 9.49-23.19 |
|  | Xincheng | 247 | 23 | 9.31 | 5.99-13.44 | 6.29 | 37.63 | 25.72-55.04 |
|  | Dongtinghong | 234 | 8 | 3.42 | 1.07-5.76 | 5.96 | 29.80 | 9.01-99.07 |
|  | Xinggang | 272 | 6 | 2.21 | 0.4-3.96 | 6.93 | 30.33 | 7.45-123.51 |
|  | **Age group** | <10 | 200 | 9 | 4.50 | 1.60-7.40 | 5.10 | 22.50 | 9.51-53.21 |
|  | 10 - 20 | 236 | 7 | 2.97 | 0.79-5.15 | 6.01 | 35.55 | 7.34-172.23 |
|  | 20 - 40 | 740 | 40 | 5.41 | 3.77-7.04 | 18.86 | 20.44 | 14.81-28.22 |
|  | 40 - 60 | 1946 | 97 | 4.98 | 4.02-5.95 | 49.59 | 23.65 | 18.68-29.95 |
|  | >60 | 802 | 36 | 4.49 | 3.05-5.92 | 20.44 | 27.84 | 18.25-42.48 |
|  | **Education** | Illiterate | 546 | 20 | 3.66 | 2.08-5.24 | 13.91 | 16.45 | 10.36-26.12 |
|  | Primary school | 1756 | 81 | 4.61 | 3.63-5.59 | 44.75 | 25.47 | 19.43-33.40 |
|  | Middle-high school | 1532 | 85 | 5.55 | 4.40-6.70 | 39.04 | 23.69 | 18.51-30.33 |
|  | College | 90 | 3 | 3.33 | 0-7.11 | 2.29 | 76.78 | 30.49-193.36 |
| **Education 2** | Illiterate | <20 | 21 | 0 | 0.00 | na | 0.54 | na | na |
| Primary school | <20 | 276 | 8 | 2.90 | 0.91-4.89 | 7.03 | 21.56 | 7.98-58,30 |
| Middle-high school | <20 | 134 | 8 | 5.97 | 1.91-10.03 | 3.41 | 35.02 | 9.35-131.26 |
| College | <20 | 5 | 0 | 0.00 | na | 0.13 | na | na |
| Illiterate | >20 | 525 | 20 | 3.81 | 2.17-5.45 | 13.38 | 16.45 | 10.36-26.12 |
| Primary school | >20 | 1480 | 73 | 4.93 | 3.83-6.04 | 37.72 | 25.94 | 19.44-34.61 |
| Middle-high school | >20 | 1398 | 77 | 5.51 | 4.31-6.71 | 35.63 | 22.75 | 17.74-29.18 |
| College | >20 | 85 | 3 | 3.53 | 0-7.53 | 2.17 | 76.78 | 30.49-193.36 |
|  | **Occupation** | Farmer | 2705 | 158 | 5.84 | 4.96-6.73 | 68.93 | 23.43 | 19.45-28.23 |
|  | Fisherman | 304 | 5 | 1.64 | 0.20-3.08 | 7.75 | 28.59 | 11.36-71.94 |
|  | Farmer + Fisherman | 348 | 9 | 2.59 | 0.91-4.26 | 8.87 | 29.96 | 11.90-75.43 |
|  | Businessman | 14 | 1 | 7.14 | 0-22.57 | 0.36 | 103.24 | na |
|  | Teacher/administrator | 23 | 1 | 4.35 | 0-13.36 | 0.59 | 86.67 | na |
|  | Student | 404 | 14 | 3.47 | 1.67-5.25 | 10.30 | 20.86 | 10.82-40.21 |
|  | Unemployed | 43 | 1 | 2.33 | 0-7.02 | 1.10 | 19.89 | na |
|  | Preschool/child | 21 | 0 | na | na | 0.54 | 0.00 | na |
|  | Other | 62 | 0 | na | na | 1.58 | 0.00 | na |
|  | **Occupation 2** | Farmer/fisher | 3357 | 172 | 5.12 | 4.38-5.87 | 85.55 | 23.87 | 20.01-28.48 |
|  | Business/teacher | 37 | 2 | 5.41 | 0-13.05 | 0.94 | 94.59 | 31.13-287.47 |
|  | Student/child | 425 | 14 | 3.29 | 1.59-5.00 | 10.83 | 20.86 | 10.82-40.21 |
|  | Unemployed | 43 | 1 | 2.33 | 0-7.02 | 1.10 | 19.89 | na |
|  | Other | 62 | 0 | 0.00 | na | 1.58 | na | na |
|  | **Defecate 1** | Home latrine | 3876 | 189 | 4.88 | 4.20-5.55 | 98.78 | 23.96 | 20.26-28.33 |
|  | Public latrine | 13 | 0 | 0.00 | na | 0.33 | na | na |
|  | Field | 1 | 0 | 0.00 | na | 0.03 | na | na |
|  | Other | 28 | 0 | 0.00 | na | 0.71 | na | na |
|  | Unknown | 6 | 0 | 0.00 | na | 0.15 | na | na |
|  | **Defecate 2** | Home latrine | 161 | 29 | 18.01 | 12.02-24.01 | 4.10 | 20.84 | 11.87-36.58 |
|  | Public latrine | 1046 | 40 | 3.82 | 2.66-4.99 | 26.66 | 29.27 | 20.86-41.08 |
|  | Field | 16 | 0 | 0.00 | na | 0.41 | na | na |
|  | Marsh or lake | 215 | 2 | 0.93 | 0-2.22 | 5.48 | 43.53 | 1.74-1091.16 |
|  | Other | 50 | 0 | 0.00 | na | 1.27 | na | na |
|  | Unknown | 714 | 76 | 10.64 | 8.38-12.91 | 18.20 | 21.12 | 16.44-27.13 |
|  | **Diarrhoea** | No | 3584 | 162 | 4.52 | 3.84-5.20 | 91.34 | 24.98 | 20.88-29.89 |
|  | 1-5 episodes/fortnight | 119 | 5 | 4.20 | 0.54-7.86 | 3.03 | 30.03 | 10.82-83.37 |
|  | >5 episodes/fortnight | 130 | 20 | 15.38 | 9.10-21.67 | 3.31 | 18.09 | 9.69-33.75 |
|  | Don't know | 91 | 2 | 2.20 | 0-5.27 | 2.32 | 7.64 | 0.32-184.38 |
|  | **Weakness** | No | 3534 | 156 | 4.41 | 3.74-5.09 | 90.06 | 24.84 | 20.74-9.75 |
|  | 1-5 episodes/fortnight | 182 | 5 | 2.75 | 0.35-5.14 | 4.64 | 13.43 | 4.24-42.51 |
|  | >5 episodes/fortnight | 114 | 25 | 21.93 | 14.22-29.64 | 2.91 | 24.95 | 14.22-43.78 |
|  | Don't know | 94 | 3 | 3.19 | 0-6.81 | 2.40 | 6.78 | 3.03-15.21 |
|  | **Fever** | No | 3733 | 179 | 4.80 | 4.11-5.48 | 95.13 | 24.52 | 20.64-29.15 |
|  | 1-5 episodes/fortnight | 37 | 0 | 0.00 | na | 0.94 | na | na |
|  | >5 episodes/fortnight | 41 | 7 | 17.07 | 5.05-29.10 | 1.04 | 16.51 | 5.63-48.42 |
|  | Don't know | 113 | 3 | 2.65 | 0-5.66 | 2.88 | 14.18 | 0.92-217.56 |
|  | **HepB** | Yes | 56 | 6 | 10.71 | 2.36-19.07 | 1.43 | 41.49 | 11.83-145.7 |
|  | No | 3513 | 177 | 5.04 | 4.31-5.76 | 89.53 | 23.68 | 19.89-28.19 |
|  | Don't know | 355 | 6 | 1.69 | 0.34-3.04 | 9.05 | 19.47 | 7.8-50.01 |
|  | **Ever had schistosomiasis** | Yes | 2674 | 140 | 5.24 | 4.39-6.08 | 68.14 | 22.45 | 18.59-27.11 |
|  | No | 1237 | 49 | 3.96 | 2.87-5.05 | 31.52 | 28.84 | 20.06-41.48 |
|  | Don't know | 13 | 0 | 0.00 | na | 0.33 |  |  |
|  | **Had advanced schistosomiasis** | Yes | 29 | 1 | 3.45 | 0-10.51 | 0.74 | 19.89 | na |
|  | No | 3889 | 188 | 4.83 | 4.16-5.51 | 99.11 | 23.98 | 20.26-28.38 |
|  | Don't know | 6 | 0 | 0.00 | na | 0.15 | na | na |
|  | **Had acute schistosomiasis** | Yes | 66 | 0 | 0.00 | na | 1.68 | na | na |
|  | No | 3850 | 189 | 4.91 | 4.23-5.59 | 98.11 | 23.96 | 20.26-28.33 |
|  | Don't know | 8 | 0 | 0.00 | na | 0.20 | na | na |
|  | **Treated for schistosomiasis last 2 years** | Yes | 1615 | 72 | 4.46 | 3.45-5.47 | 41.16 | 24.74 | 19.15-31.94 |
|  | No | 2305 | 117 | 5.08 | 4.18-5.97 | 58.74 | 23.49 | 18.80-29.36 |
|  | Don't know | 4 | 0 | 0.00 | na | 0.10 | na | na |
|  | **Total number of previous Schistosomiasis treatments** | <5 | 1497 | 96 | 6.41 | 5.17-7.66 | 38.15 | 22.76 | 18.29-28.34 |
|  | 5-10 | 711 | 26 | 3.66 | 2.27-5.04 | 18.12 | 25.74 | 16.06-41.25 |
|  | >10 <20 | 440 | 17 | 3.86 | 2.06-5.67 | 11.21 | 15.41 | 7.96-29.86 |
|  | >20 | 119 | 1 | 0.84 | 0-2.50 | 3.03 | 114.12 | na |
|  | 0 | 1014 | 43 | 4.24 | 3.0-5.48 | 25.84 | 29.55 | 19.71-44.32 |
|  | Unknown | 143 | 6 | 4.20 | 0.87-7.52 | 3.64 | 23.78 | 9.42-60.01 |
|  | **Years worked in this village** | <5 | 24 | 0 | 0.00 | na | 0.61 | na | na |
|  | 5-10 | 252 | 22 | 8.73 | 1.83-6.90 | 6.42 | 32.10 | 16.62-62.00 |
|  | 10-20 | 635 | 39 | 6.14 | 2.94-6.20 | 16.18 | 19.72 | 12.78-30.42 |
|  | >20 | 3013 | 249 | 8.26 | 4.17-5.72 | 76.78 | 24.35 | 24.35-29.51 |
|  | **Live and work for more than 6 mths/yr in this village** | Yes | 3904 | 187 | 4.79 | 4.12-5.46 | 99.49 | 23.69 | 20.01-28.04 |
|  | No | 19 | 2 | 10.53 | 0-25.72 | 0.48 | 69.26 | 4.01-1197.26 |
|  | Don't know | 1 | 0 | na | na | 0.03 | na | na |
|  | No answer | 0 | 0 | na | na | 0.00 | na | na |
|  | **Have you had water contact last 12 mths** | Yes | 3453 | 179 | 5.18 | 4.44-5.92 | 88.00 | 24.30 | 20.42-28.92 |
|  | No | 469 | 10 | 2.13 | 0.8-3.44 | 11.95 | 18.61 | 9.51-36.40 |
|  | Don't know | 2 | 0 | 0.00 | na | 0.05 | na | na |
|  | No answer | 0 | na | na | na | 0.00 | na | na |
| **Spring water contact activities** | **Frequency of water contact** | >1 per wk | 804 | 40 | 4.98 | 3.47-6.48 | 20.49 | 27.97 | 18.91-41.37 |
| Between weekly and monthly | 643 | 36 | 5.60 | 3.82-7.38 | 16.39 | 23.40 | 16.77-32.65 |
| 1 per mth | 922 | 62 | 6.72 | 5.10-8.34 | 23.50 | 24.33 | 18.16-32.59 |
| No response | 1555 | na | na | na | 39.63 | na | na |
| **Fishing** | Checked | 728 | 19 | 2.61 | 14.49-3.77 | 18.55 | 24.44 | 11.96-33.64 |
| Unchecked | 3196 | 170 | 5.32 | 4.54-6.10 | 81.45 | 20.06 | 20.44-29.21 |
| **Herding bovines** | Checked | 19 | 1 | 5.26 | 0-16.32 | 0.48 | 62.37 | na |
| Unchecked | 3905 | 188 | 4.81 | 4.14-5.49 | 99.52 | 23.84 | 20.15-28.20 |
| **Farming/Cutting grass** | Checked | 960 | 75 | 7.81 | 6.11-9.51 | 24.46 | 24.02 | 19.09-30.24 |
| Unchecked | 2964 | 114 | 3.85 | 3.15-4.54 | 75.54 | 23.86 | 18.1-30.42 |
| **washing clothes** | Checked | 158 | 9 | 5.70 | 2.04-9.35 | 4.03 | 31.15 | 10.56-91.85 |
| Unchecked | 3766 | 180 | 4.78 | 4.10-5.46 | 95.97 | 23.65 | 19.94-28.03 |
| **Swimming or playing** | Checked | 75 | 3 | 4.00 | 0-8.54 | 1.91 | 34.77 | 3.41-354.51 |
| Unchecked | 3849 | 186 | 4.83 | 4.15-5.51 | 98.09 | 23.81 | 20.10-28.2 |
| **Wading/Washing hands** | Checked | 736 | 42 | 5.71 | 4.03-7.39 | 18.76 | 23.50 | 17.72-37.03 |
| Unchecked | 3188 | 147 | 4.61 | 3.88-5.34 | 81.24 | 25.61 | 19.43-28.43 |
| **Other** | Checked | 20 | 1 | 5.00 | 0-15.47 | 0.51 | 15.47 | na |
| Unchecked | 3904 | 188 | 4.82 | 4.14-5.49 | 99.49 | 24.01 | 20.29-28.42 |
| **Summer water contact activities** | **Frequency of water contact** | >1 per wk | 1048 | 41 | 3.91 | 2.74-5.09 | 26.71 | 22.67 | 15.65-32.83 |
| Between weekly and monthly | 681 | 40 | 5.87 | 4.10-7.64 | 17.35 | 24.46 | 16.26-36.79 |
| 1 per mth | 1100 | 46 | 4.18 | 3.00-5.37 | 28.03 | 21.77 | 15.37-30.83 |
| No response | 0 | 0 | 0.00 | na | 0.00 | na | na |
| **Fishing** | Checked | 1052 | 26 | 2.47 | 1.53-3.41 | 26.81 | 17.50 | 10.20-28.49 |
| Unchecked | 2872 | 163 | 5.68 | 4.83-6.52 | 73.19 | 25.29 | 21.9-30.19 |
| **Herding bovines** | Checked | 19 | 1 | 5.26 | 0-16.32 | 0.48 | 62.37 | na |
| Unchecked | 3905 | 188 | 4.81 | 4.14-5.49 | 99.52 | 23.84 | 20.15-28.20 |
| **Farming/Cutting grass** | Checked | 765 | 57 | 7.45 | 5.59-9.32 | 19.50 | 23.23 | 17.10-31.56 |
| Unchecked | 3159 | 132 | 4.18 | 3.48-4.88 | 80.50 | 24.28 | 19.3-29.74 |
| **washing clothes** | Checked | 213 | 13 | 6.10 | 2.86-9.34 | 5.43 | 19.26 | 10.95-33.87 |
| Unchecked | 3711 | 176 | 4.74 | 4.06-5.43 | 94.57 | 24.35 | 20.42-29.04 |
| **Swimming or playing** | Checked | 191 | 8 | 4.19 | 1.32-7.06 | 4.87 | 54.37 | 27.61-107.06 |
| Unchecked | 3733 | 181 | 4.85 | 4.16-5.54 | 95.13 | 23.11 | 19.46-27.43 |
| **Wading/Washing hands** | Checked | 991 | 34 | 3.43 | 2.30-4.57 | 25.25 | 23.60 | 15.02-37.09 |
| Unchecked | 2933 | 155 | 5.28 | 4.47-6.09 | 74.75 | 24.04 | 20.05-28.81 |
| **Other** | Checked | 117 | 4 | 3.42 | 0.08-6.76 | 2.98 | 34.89 | 14.63-83.20 |
| Unchecked | 3807 | 185 | 4.86 | 4.18-5.54 | 97.02 | 23.76 | 20.03-28.19 |
| **Autumn water contact activities** | **Frequency of water contact** | >1 per wk | 683 | 28 | 4.10 | 2.61-5.59 | 17.41 | 21.58 | 14.42-32.30 |
| Between weekly and monthly | 324 | 15 | 4.63 | 2.33-6.93 | 8.26 | 21.62 | 11.82-39.56 |
| 1 per mth | 435 | 16 | 3.68 | 1.90-5.45 | 11.09 | 29.59 | 17.06-51.35 |
| Missing | 2428 | 130 | na | na | 61.88 | na | na |
| **Fishing** | Checked | 670 | 9 | 1.34 | 0.47-2.22 | 17.07 | 20.40 | 11.41-36.47 |
| Unchecked | 3254 | 180 | 5.53 | 4.75-6.32 | 82.93 | 24.15 | 20.29-28.75 |
| **Herding bovines** | Checked | 17 | 1 | 5.88 | 0-18.35 | 0.43 | 62.37 | na |
| Unchecked | 3907 | 188 | 4.81 | 4.14-5.48 | 99.57 | 23.84 | 20.15-28.20 |
| **Farming/Cutting grass** | Checked | 477 | 38 | 7.97 | 5.53-10.41 | 12.16 | 24.82 | 14.93-29.00 |
| Unchecked | 3447 | 151 | 4.38 | 3.70-5.06 | 87.84 | 20.81 | 20.45-30.13 |
| **washing clothes** | Checked | 72 | 3 | 4.17 | 0-8.90 | 1.83 | 36.79 | 1.98-684.46 |
| Unchecked | 3852 | 186 | 4.83 | 4.15-5.51 | 98.17 | 23.79 | 20.09-28.18 |
| **Swimming or playing** | Checked | 31 | 2 | 6.45 | 0-6.45 | 0.79 | 21.31 | 0.14-3156.05 |
| Unchecked | 3893 | 187 | 4.80 | 4.13-5.48 | 99.21 | 23.99 | 20.25-28.41 |
| **Wading/Washing hands** | Checked | 415 | 13 | 3.13 | 1.45-4.82 | 10.58 | 37.88 | 18.45-77.76 |
| Unchecked | 3509 | 176 | 5.02 | 4.29-5.74 | 89.42 | 23.16 | 19.48-27.53 |
| **Other** | Checked | 10 | 0 | 0.00 | na | 0.25 | na | na |
| Unchecked | 3914 | 189 | 4.83 | 4.16-5.50 | 99.75 | 23.96 | 20.26-28.33 |
| **Water contact - seasons combined** | **Fishing** | Checked | 1159 | 35 | 3.02 | 2.03-4.01 | 29.54 | 19.60 | 13.06-30.22 |
| Unchecked | 2765 | 154 | 5.57 | 4.71-6.42 | 70.46 | 25.00 | 20.80-30.05 |
| **Herding bovines** | Checked | 23 | 1 | 4.35 | 0-13.36 | 0.59 | 62.37 | na |
| Unchecked | 3901 | 188 | 4.82 | 4.15-5.49 | 99.41 | 23.84 | 23.84-28.20 |
| **Farming/Cutting grass** | Checked | 1169 | 84 | 7.19 | 5.70-8.67 | 29.79 | 24.16 | 19.07-30.62 |
| Unchecked | 2755 | 105 | 3.81 | 3.10-4.53 | 70.21 | 23.79 | 18.75-30.19 |
| **washing clothes** | Checked | 273 | 16 | 5.86 | 3.06-8.66 | 6.96 | 21.99 | 11.46-42.21 |
| Unchecked | 3651 | 173 | 4.74 | 4.05-5.43 | 93.04 | 24.15 | 20.27-28.76 |
| **Swimming or playing** | Checked | 224 | 9 | 4.02 | 0-6.00 | 5.71 | 57.68 | 31.70-104.94 |
| Unchecked | 3700 | 180 | 4.86 | 4.17-5.56 | 94.29 | 22.93 | 19.31-27.23 |
| **Wading/Washing hands** | Checked | 1303 | 62 | 4.76 | 3.60-5.92 | 33.21 | 25.14 | 18.44-34.26 |
| Unchecked | 2621 | 127 | 4.85 | 4.02-5.67 | 66.79 | 23.40 | 19.14-28.62 |
| **Other** | Checked | 124 | 4 | 3.23 | 0-6.38 | 3.16 | 34.89 | 14.63-83.20 |
| Unchecked | 3800 | 185 | 4.87 | 4.18-5.55 | 96.84 | 23.76 | 20.03-28.19 |
| **Any WC** | Checked | 3454 | 178 | 5.15 | 4.42-5.89 | 88.02 | 24.58 | 20.67-29.24 |
| Unchecked | 471 | 11 | 2.34 | 0.97-3.70 | 12.00 | 15.82 | 7.87-31.82 |

\*95% confidence interval

\*\*Geometric mean eggs per gram of faeces