**S9 Table. Pool partitions corresponding to the points of Fig 3C, resulting by penalizing the false positive rate.** Here, under **se=0.9, sp=0.99**,we **vary λ2** while we fix λ1=0 and, for each resulting partition, we compute the average number of tests and false negative/positive rate. We set the number of contacts to N = 100 and sample the number of positive infections from a truncated negative binomial distribution with reproductive number R = 2.5 and dispersion parameter k = 0.1. In each experiment, we estimate averages using 10,000 samples. Double entries in the first column correspond to cases where the set of contacts is partitioned into a combination of poolsof two different sizes.

|  |  |  |  |
| --- | --- | --- | --- |
| Pool partitions(# of pools x size) | Average # of tests | False Negative Rate | False Positive Rate |
| 5 x 20 | 18.62 | 7.31% | 0.13% |
| 4 x 172 x 16 | 18.63 | 7.52% | 0.12% |
| 2 x 155 x 14 | 18.89 | 7.31% | 0.11% |
| 4 x 134 x 12 | 19.36 | 6.89% | 0.10% |
| 1 x 128 x 11 | 19.79 | 6.87% | 0.10% |
| 10 x 10 | 20.34 | 7.02% | 0.09% |
| 1 x 1010 x 9 | 20.84 | 7.19% | 0.10% |
| 4 x 98 x 8 | 21.49 | 6.92% | 0.09% |
| 9 x 84 x 7 | 22.18 | 6.80% | 0.09% |
| 2 x 812 x 7 | 22.86 | 6.86% | 0.08% |
| 10 x 75 x 6 | 23.60 | 6.70% | 0.08% |
| 4 x 712 x 6 | 24.34 | 6.59% | 0.08% |
| 15 x 62 x 5 | 25.12 | 6.48% | 0.08% |
| 20 x 5 | 27.46 | 6.72% | 0.07% |
| 25 x 4 | 31.63 | 6.49% | 0.06% |
| 1 x 432 x 3 | 38.73 | 6.02% | 0.04% |
| 32 x 32 x 2 | 39.65 | 5.95% | 0.04% |
| 50 x 2 | 54.54 | 5.61% | 0.03% |