**Supplementary Table S1.** Magnitude of summer peaks in adolescent vaccination by state (source: National Immunization Survey-Teen, administered 2008 to 2012; *n*=70,144 adolescents).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   |   | HPV1 | Tdap | Meng |
|  | *N* |  *T*  | magnitude (RHL[var]) |  *T*  | magnitude (RHL[var]) |  *T*  | magnitude (RHL[var]) |
| Alabama  | 1252 |  3,031\*  | 4.2 | (0.01) |  6,998\*  | 4.4 | (0.01) |  8,216\*  | 6.8 | (0.01) |
| Alaska  | 1058 |  695\*  | 6.3 | (0.01) |  1,413\*  | 7.2 | (0.01) |  1,792\*  | 17.9 | (0.01) |
| Arizona  | 1391 |  6,685\*  | 5.2 | (0.01) |  9,413\*  | 3.6 | (0.01) |  16,821\*  | 4.9 | (0.01) |
| Arkansas  | 833 |  3,046\*  | 37.7 | (0.01) |  4,033\*  | 7.8 | (0.01) |  3,657\*  | 15.0 | (0.01) |
| California  | 1582 |  29,461\*  | 4.5 | (0.01) |  48,407\*  | 4.0 | (0.01) |  90,966\*  | 7.4 | (0.01) |
| Colorado  | 1408 |  3,239\*  | 4.3 | (0.01) |  11,533\*  | 5.9 | (0.01) |  11,910\*  | 12.1 | (0.01) |
| Connecticut  | 1588 |  2,183\*  | 3.4 | (0.01) |  5,352\*  | 4.1 | (0.01) |  10,525\*  | 8.8 | (0.01) |
| Delaware  | 1409 |  499\*  | 3.2 | (0.01) |  935\*  | 3.5 | (0.01) |  1,712\*  | 5.0 | (0.01) |
| District of Columbia | 1517 |  469\*  | 7.0 | (0.01) |  308\*  | 3.0 | (0.01) |  1,347\*  | 7.9 | (0.01) |
| Florida  | 1374 |  10,910\*  | 4.4 | (0.01) |  30,650\*  | 6.2 | (0.01) |  36,766\*  | 8.8 | (0.01) |
| Georgia  | 1258 |  6,479\*  | 5.6 | (0.01) |  12,250\*  | 3.9 | (0.01) |  21,645\*  | 7.5 | (0.01) |
| Hawaii  | 1143 |  1,025\*  | 4.6 | (0.01) |  1,718\*  | 5.2 | (0.01) |  2,059\*  | 5.9 | (0.01) |
| Idaho  | 903 |  2,054\*  | 56.9 | (0.01) |  2,640\*  | 7.7 | (0.01) |  3,316\*  | 15.4 | (0.01) |
| Illinois | 2748 |  6,925\*  | 4.8 | (0.01) |  21,718\*  | 5.2 | (0.01) |  34,551\*  | 16.4 | (0.01) |
| Indiana  | 1584 |  3,611\*  | 5.0 | (0.01) |  8,551\*  | 3.7 | (0.01) |  16,902\*  | 7.3 | (0.01) |
| Iowa  | 1074 |  2,439\*  | 5.7 | (0.01) |  4,544\*  | 5.7 | (0.01) |  5,005\*  | 7.9 | (0.01) |
| Kansas  | 1248 |  2,820\*  | 12.3 | (0.01) |  6,174\*  | 6.2 | (0.01) |  5,521\*  | 13.1 | (0.01) |
| Kentucky  | 1020 |  1,670\*  | 3.4 | (0.01) |  6,264\*  | 6.5 | (0.01) |  6,779\*  | 8.0 | (0.01) |
| Louisiana  | 1387 |  3,653\*  | 4.3 | (0.01) |  8,867\*  | 6.6 | (0.01) |  16,836\*  | 15.6 | (0.01) |
| Maine  | 1309 |  670\*  | 3.5 | (0.01) |  1,168\*  | 3.1 | (0.01) |  2,294\*  | 5.4 | (0.01) |
| Maryland  | 1384 |  3,139\*  | 3.9 | (0.01) |  9,519\*  | 6.3 | (0.01) |  13,793\*  | 6.8 | (0.01) |
| Massachusetts  | 1479 |  5,903\*  | 4.5 | (0.01) |  5,877\*  | 3.1 | (0.01) |  20,215\*  | 8.2 | (0.01) |
| Michigan  | 1334 |  6,099\*  | 4.4 | (0.01) |  14,617\*  | 5.1 | (0.01) |  19,849\*  | 6.1 | (0.01) |
| Minnesota  | 1156 |  5,061\*  | 8.5 | (0.01) |  8,162\*  | 5.3 | (0.01) |  12,251\*  | 13.3 | (0.01) |
| Mississippi  | 686 |  965\*  | 4.1 | (0.01) |  1,926\*  | 4.0 | (0.01) |  2,822\*  | 8.1 | (0.01) |
| Missouri  | 1266 |  3,977\*  | 5.4 | (0.01) |  10,394\*  | 6.3 | (0.01) |  10,037\*  | 7.4 | (0.01) |
| Montana | 1086 |  910\*  | 12.3 | (0.01) |  1,615\*  | 6.2 | (0.01) |  1,183\*  | 8.4 | (0.01) |
| Nebraska  | 1153 |  814\*  | 3.2 | (0.01) |  2,588\*  | 4.7 | (0.01) |  4,398\*  | 10.6 | (0.01) |
| Nevada  | 1183 |  4,328\*  | 98.2 | (0.01) |  5,973\*  | 6.5 | (0.01) |  9,005\*  | 40.3 | (0.01) |
| New Hampshire  | 1359 |  1,282\*  | 4.9 | (0.01) |  1,435\*  | 3.0 | (0.01) |  3,618\*  | 7.4 | (0.01) |
| New Jersey  | 1614 |  7,210\*  | 6.9 | (0.01) |  19,648\*  | 5.7 | (0.01) |  36,139\*  | 9.6 | (0.01) |
| New Mexico  | 1441 |  777\*  | 2.5 | (0.01) |  4,531\*  | 5.1 | (0.01) |  4,798\*  | 9.5 | (0.01) |
| New York  | 2715 |  22,260\*  | 7.6 | (0.01) |  39,260\*  | 4.5 | (0.01) |  43,429\*  | 6.1 | (0.01) |
| North Carolina  | 1260 |  9,634\*  | 8.9 | (0.01) |  15,837\*  | 4.3 | (0.01) |  18,101\*  | 7.2 | (0.01) |
| North Dakota  | 1242 |  455\*  | 6.1 | (0.01) |  1,335\*  | 5.7 | (0.01) |  2,235\*  | 11.8 | (0.01) |
| Ohio  | 1137 |  9,375\*  | 6.5 | (0.01) |  12,420\*  | 4.1 | (0.01) |  20,629\*  | 5.8 | (0.01) |
| Oklahoma  | 981 |  2,987\*  | 5.8 | (0.01) |  5,379\*  | 6.3 | (0.01) |  6,440\*  | 11.0 | (0.01) |
| Oregon  | 1226 |  2,976\*  | 5.0 | (0.01) |  5,783\*  | 5.0 | (0.01) |  6,341\*  | 9.6 | (0.01) |
| Pennsylvania | 2907 |  11,219\*  | 4.8 | (0.01) |  20,082\*  | 5.1 | (0.01) |  38,034\*  | 9.0 | (0.01) |
| Rhode Island  | 1438 |  708\*  | 2.9 | (0.01) |  1,153\*  | 4.0 | (0.01) |  1,963\*  | 6.1 | (0.01) |
| South Carolina  | 909 |  1,011\*  | 2.5 | (0.01) |  3,834\*  | 3.6 | (0.01) |  6,941\*  | 7.3 | (0.01) |
| South Dakota  | 954 |  2,735\*  | 50.0 | (0.01) |  1,626\*  | 11.7 | (0.01) |  1,690\*  | 19.3 | (0.01) |
| Tennessee  | 1181 |  3,980\*  | 5.3 | (0.01) |  7,965\*  | 5.1 | (0.01) |  15,161\*  | 15.8 | (0.01) |
| Texas  | 6236 |  20,190\*  | 6.4 | (0.01) |  53,091\*  | 6.0 | (0.01) |  74,826\*  | 13.7 | (0.01) |
| Utah  | 1085 |  2,457\*  | 10.3 | (0.01) |  8,000\*  | 13.3 | (0.01) |  7,343\*  | 24.6 | (0.01) |
| Vermont  | 1441 |  527\*  | 4.6 | (0.01) |  947\*  | 3.7 | (0.01) |  1,205\*  | 7.4 | (0.01) |
| Virginia  | 1219 |  7,166\*  | 6.6 | (0.01) |  13,168\*  | 5.4 | (0.01) |  15,761\*  | 7.7 | (0.01) |
| Washington  | 1291 |  7,312\*  | 4.9 | (0.01) |  15,848\*  | 6.1 | (0.01) |  16,774\*  | 7.6 | (0.01) |
| West Virginia  | 940 |  1,648\*  | 8.8 | (0.01) |  1,708\*  | 4.3 | (0.01) |  2,729\*  | 9.2 | (0.01) |
| Wisconsin  | 1321 |  5,338\*  | 5.7 | (0.01) |  14,340\*  | 5.9 | (0.01) |  17,355\*  | 12.6 | (0.01) |
| Wyoming | 1221 |  512\*  | 6.2 | (0.01) |  627\*  | 3.8 | (0.01) |  1,217\*  | 12.0 | (0.01) |

*Note.* HPV=human papillomavirus vaccine; Tdap=tetanus, diphtheria, and pertussis booster; Meng=meningococcal vaccine; *T*=Edwards T statistic; RHL=ratio of highest to lowest vaccination; var=variance. \**p*<.001.

1Uptake of first dose among female adolescents only.