

SUPPLEMENTARY TABLE S1. Demographic information of the subjects in Shenzhen and Changzhou, 2018–2019.

| variable                               | Group              | IIV4s                 |                       | IIV3s                 |                       |
|--|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|  |                    | Vaccine Group<br>N=75 | Control Group<br>N=30 | Vaccine Group<br>N=74 | Control Group<br>N=38 |
| Sex                                    | Male               | 27(36.0%)             | 7(23.3%)              | 40(54.1%)             | 19(50.0%)             |
|  | Female             | 48(64.0%)             | 23(76.7%)             | 34(45.9%)             | 19(50.0%)             |
| Age                                    | 18–59 years        | 50(80.0%)             | 25(83.3%)             | 48(64.9%)             | 25(65.8%)             |
|  | ≥60 years          | 15(20.0%)             | 5(16.7%)              | 26(35.1%)             | 13(34.2%)             |
| Healthcare                             | Yes                | 31(41.3%)             | 22(73.3%)             | 20(27.0%)             | 14(36.8%)             |
|  | No                 | 44(58.7%)             | 8(26.7%)              | 54(73.0%)             | 24(63.2%)             |
| Average outdoor working time in winter | <2 hours           | 23(30.7%)             | 15(50%)               | 9(12.2%)              | 5(13.2%)              |
|  | 2–8 hours          | 34(45.3%)             | 12(40%)               | 56(75.7%)             | 31(81.2%)             |
|  | >8 hours           | 13(17.3%)             | 3(10%)                | 6(8.1%)               | 2(5.6%)               |
| Cumulative household income            | <5 ten thousand    | 11(14.7%)             | 8(26.7%)              | 3(4.1%)               | 2(5.3%)               |
|  | 5–10 ten thousand  | 31(41.3%)             | 3(10%)                | 23(31.1%)             | 12(31.6%)             |
|  | 10–30 ten thousand | 28(37.3%)             | 15(50%)               | 37(50.0%)             | 24(63.1%)             |
|  | >30 ten thousand   | 16(21.3%)             | 4(13.3%)              | 11(14.9%)             | 0                     |
|  | Yes                | 12(10.7%)             | 3(6.7%)               | 22(29.7%)             | 10(26.3%)             |
| Smoking                                | No                 | 63(84.0%)             | 27(90.0%)             | 52(70.3%)             | 28(73.7%)             |
|  | Yes                | 27(36.0%)             | 1(3.3%)               | 27(36.5%)             | 13(34.2%)             |
| Chronic disease                        | Yes                | 27(36.0%)             | 1(3.3%)               | 27(36.5%)             | 13(34.2%)             |
|  | No                 | 48(64.0%)             | 29(96.7%)             | 47(63.5%)             | 25(65.8%)             |

SUPPLEMENTARY TABLE S2. The exact age distribution between different gender in IIV4s and IIV3s groups, 2018–2019.

|             | IIV4s       |               |       | IIV3s       |               |       |
|-------------|-------------|---------------|-------|-------------|---------------|-------|
|             | Male (n=27) | female (n=48) | p     | male (n=40) | female (n=34) | p     |
| 18–59 years | 16(59.3%)   | 34(70.8%)     | 0.307 | 23(57.5%)   | 25(73.5%)     | 0.150 |
| ≥60 years   | 11(40.7%)   | 14(29.2%)     |       | 17(42.5%)   | 9(26.5%)      |       |

SUPPLEMENTARY TABLE S3. The geometric mean titer (GMT) of antibodies in the Shenzhen quadrivalent and Changzhou trivalent vaccine groups, 2018–2019 (95% CI).

|               | GMT     | IIV4s 95% CI            |                        |                        | IIV3s 95% CI           |                           |                         |                        |
|---------------|---------|-------------------------|------------------------|------------------------|------------------------|---------------------------|-------------------------|------------------------|
|               |         | H1N1                    | H3N2                   | B/Victoria             | B/Yamagata             | H1N1                      | H3N2                    | B/Victoria             |
| Vaccine Group | 0 day   | 9.2<br>(7.06,11.99)     | 12.5<br>(8.51,11.14)   | 7.3<br>(6.17,8.64)     | 12.03<br>(10.27,14.09) | 9.45<br>(7.67,11.65)      | 11.40<br>(8.81,11.65)   | 5.99<br>(5.39,6.65)    |
|               | 30 day  | 91.37<br>(59.84,139.54) | 64.11<br>(51.62,79.62) | 35.64<br>(27.34,46.45) | 40<br>(30.69,52.14)    | 147.06<br>(113.30,194.36) | 92.07<br>(70.96,119.45) | 21.99<br>(16.53,29.26) |
|               | 180 day | 59.36<br>(40.73,86.52)  | 29.55<br>(23.85,36.62) | 16.18<br>(12.76,20.53) | 24.72<br>(19.40,31.50) | 60.97<br>(55.59,119.59)   | 42.35<br>(32.95,54.43)  | 12.09<br>(9.66,15.13)  |
|               | 360 day | 31.96<br>(24.61,41.50)  | 29.55<br>(25.16,34.72) | 22.93<br>(18.31,28.71) | 16.61<br>(13.77,20.05) | 38.12<br>(28.75,50.54)    | 40.79<br>(34.63,51.00)  | 25.53<br>(19.92,32.72) |
| Control Group | 0 day   | 7.76<br>(5.06,11.89)    | 8.51<br>(6.50,11.14)   | 7.07<br>(5.23,9.57)    | 8.31<br>(6.71,10.30)   | 10.38<br>(7.46,14.46)     | 14.82<br>(9.95,22.08)   | 5.49<br>(4.98,6.05)    |
|               | 30 day  | 9.12<br>(5.73,14.51)    | 9.77<br>(7.54,12.66)   | 6.3<br>(5.01,7.92)     | 9.55<br>(7.55,12.075)  | 10.38<br>(7.46,14.52)     | 13.42<br>(8.85,20.36)   | 5.70<br>(5.2,6.25)     |
|               | 180 day | 9.12<br>(5.46,66.37)    | 8.9<br>(7.03,11.28)    | 6.9<br>(5.47,8.72)     | 9.77<br>(7.48,12.77)   | 11.19<br>(8.24,15.19)     | 14.55<br>(9.73,21.75)   | 5.39<br>(5.01,5.80)    |
|               | 360 day | 8.66<br>(6.25,12.00)    | 10.25<br>(7.92,13.27)  | 9.57<br>(6.63,10.67)   | 6.73<br>(5.77,7.85)    | 12.30<br>(9.13,16.59)     | 12.06<br>(9.20,15.81)   | 9.28<br>(6.58,13.08)   |