Supplementary Information

Table S1. Vaccination schedule by countries or regions in the Western Pacific Region

Country/region	Number of doses	Vaccination time	IPV vaccines used
Cambodia [1]	1 IPV + 3 bOPV	bOPV: 6 weeks, 10 weeks, 14 weeks IPV: 14 weeks	Unknown
Hong Kong [2, 3]	6 IPV	2 months, 4 months, 6 months, 18 months, 6-7 years, 11-12 years	wIPVs
Japan [4, 5]	4 IPV	3 between 2-12 months; 1 between 12-18 months	Both wIPVs and sIPVs
Laos [6, 7]	1 IPV + 3 bOPV	bOPV: 6 weeks, 10 weeks, 14 weeks IPV: 14 weeks	wIPVs
Macau [8, 9]	5 IPV	2 months, 4 months, 6 months, 18 months, 5-6 years	wIPVs
Mainland China (except Shanghai, Jiangsu and Zhejiang) [10, 11]	2 IPV + 2 bOPV	IPV: 2 months, 3 months bOPV: 4 months, 4 years	sIPVs
Mainland China (Shanghai, Jiangsu, Zhejiang) [11-14]	4 IPV	2 months, 3 months, 4 months, 18 months	sIPVs
Malaysia [15]	4 IPV	2 months, 3 months, 5 months, 18 months	wIPVs
Mongolia [16, 17]	1 IPV + 4 bOPV	bOPV: birth, 2 months, 3 months, 4 months IPV: 5 months	wIPVs
The Philippines [18, 19]	2 IPV + 3 bOPV	bOPV: 6 weeks, 10 weeks, 14 weeks IPV: 14 weeks, 9 months	wIPVs
South Korea [20, 21]	4 IPV	2 months, 4 months, 6-18 months, 4-6 years	wIPVs
Taiwan [22, 23]	5 IPV	2 months, 4 months, 6 months, 18 months, 5 years	wIPVs
Vietnam [24, 25]	2 IPV + 3 bOPV	bOPV: 2 months, 3 months, 4 months IPV: 5 months, 9 months	wIPVs

Table S2. Participating children by the time after receiving the 4th or 5th dose of IPV

Classification	Number of Participants (%)
1-3 months after the 4th dose	8 (2.7%)
6 months after the 4th dose	12 (4.0%)
12 months after the 4th dose	20 (6.7%)
24 months after the 4th dose	31 (10.3%)
36 months after the 4th dose	39 (13.0%)
48 months after the 4th dose	46 (15.3%)
1-3 months after the 5th dose	22 (7.3%)
6 months after the 5th dose	21 (7.0%)
12 months after the 5th dose	35 (11.7%)
24 months after the 5th dose	27 (9.0%)
36 months after the 5th dose	38 (12.7%)

Table S3. Estimated mean nAb titres one month after receiving the 4th and 5th dose of IPV

IPV dose	PV type	Male	Female
4	PV1	2,317 (1,390 – 3,862)	1,772 (1,098 – 2,918)
4	PV2	4,762 (3,146 – 7,490)	4,553 (2,972 – 7,132)
4	PV3	2,813 (1,653 – 4,914)	2,797 (1,604 – 4,970)
5	PV1	1,023 (739 – 1,424)	1,270 (941 – 1,721)
5	PV2	2,684 (1,965 – 3,720)	2,870 (2,197 – 3,761)
5	PV3	1,689 (1,086 – 2,617)	2,160 (1,449 – 3,257)

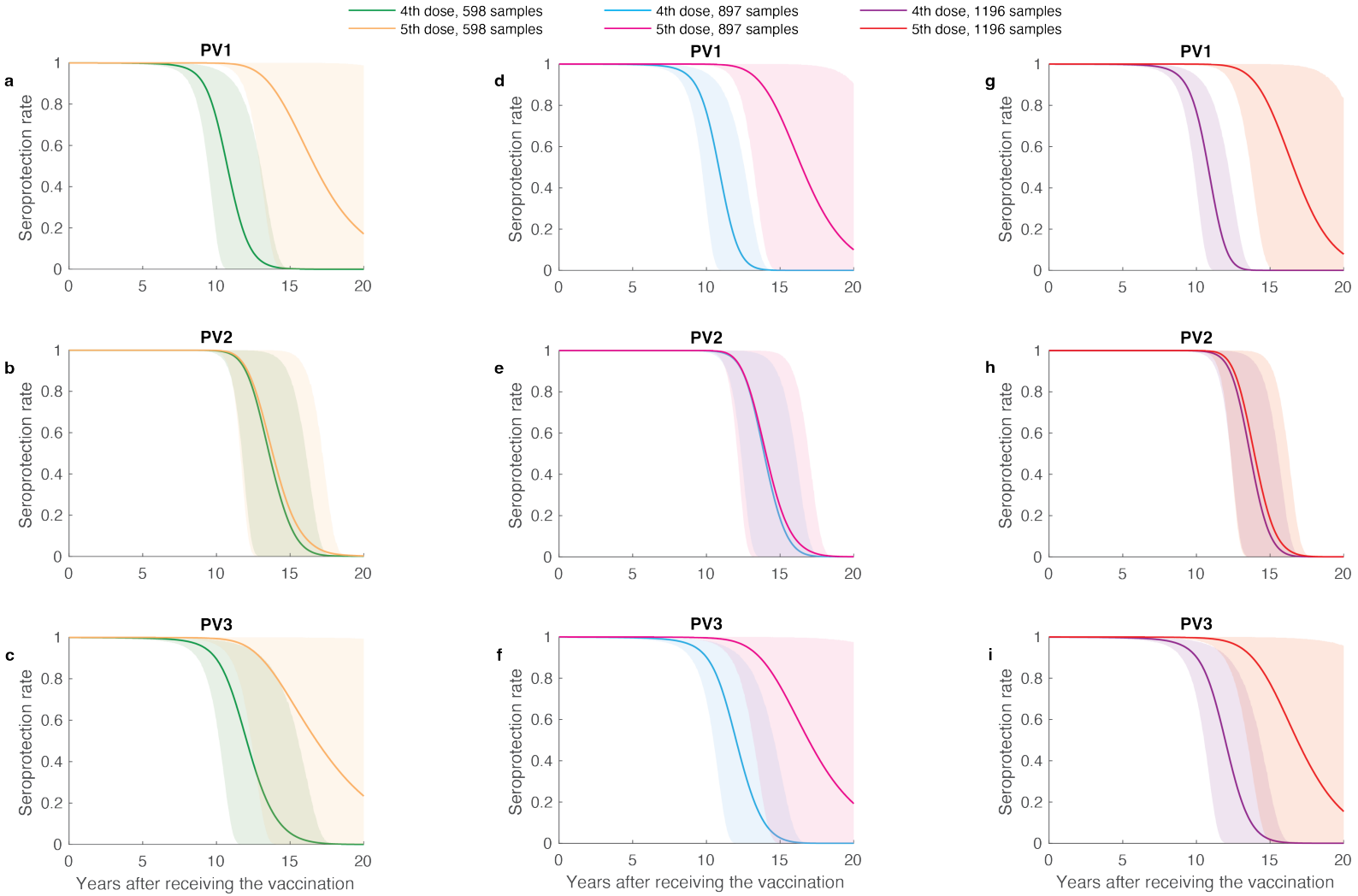

Figure S1. Comparison of estimated seroprotection rates after receiving the 4th and 5th dose of IPV with increased sample sizes. The seroprotection rates against PV1, PV2 and PV3 as a function of time since receiving the 4th or 5th dose of vaccination assuming there were (a-c) 598 samples; (d-f) 897 samples; and (g-i) 1196 samples. Solid lines and shades represent the posterior mean and 95% CrI of the estimates from data from increased sample size by replicating the original samples by (a-c) twice, (d-f) three times and (g-i) four times.

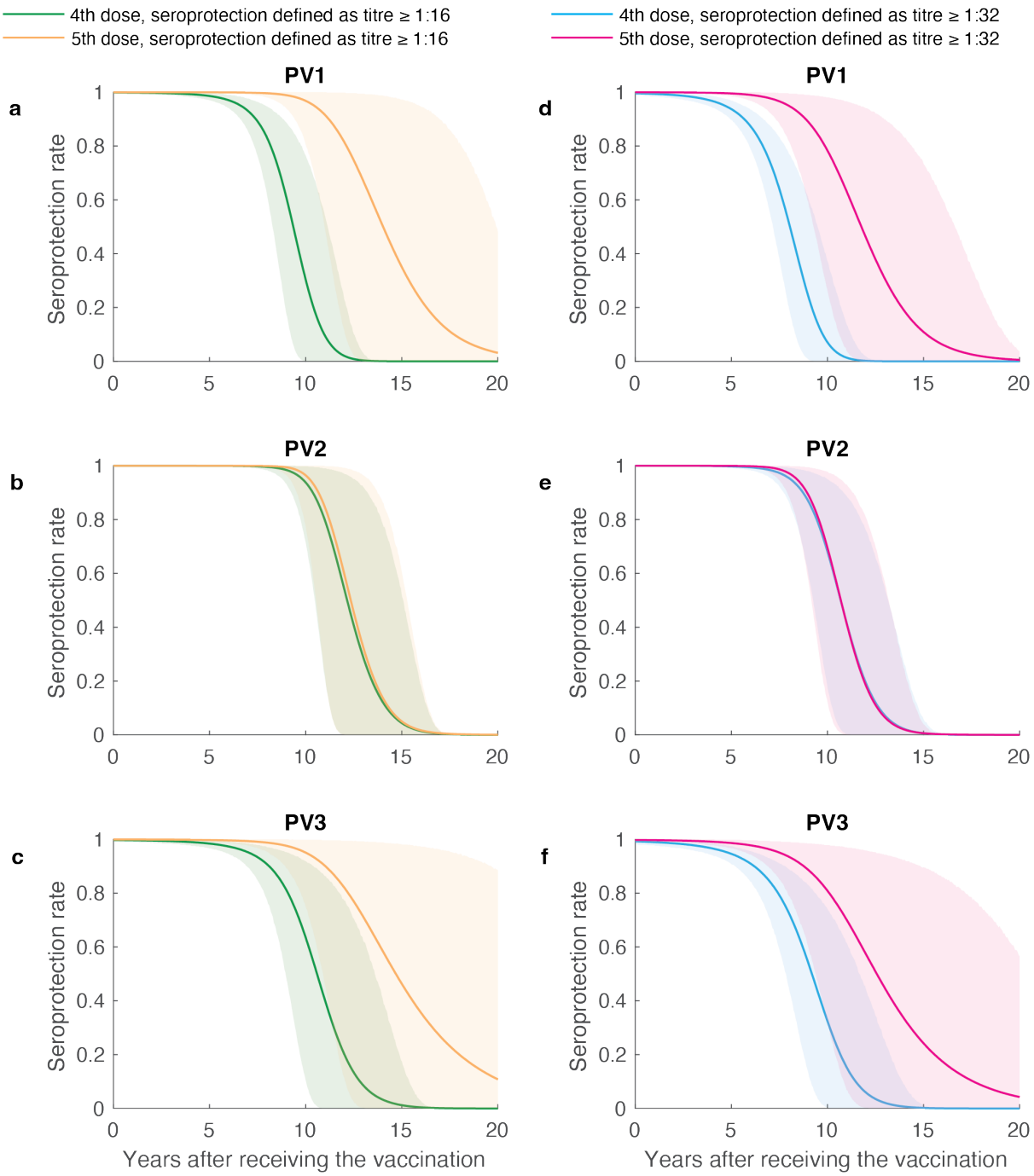

Figure S2. Comparison of estimated seroprotection rates after receiving the 4th and 5th dose of IPV with different thresholds. The seroprotection rates against PV1, PV2 and PV3 as a function of time after receiving the 4th or 5th dose of vaccination under the nAb titre threshold (a-c) ≥ 16; (d-f) ≥ 32. Solid lines and shades represent the posterior mean and 95% CrI of the estimates under various pre-set threshold.

References

1. World Health Organization. *Vaccination schedule for Cambodia*. Available from: https://immunizationdata.who.int/pages/schedule-by-country/khm.html?DISEASECODE=&TARGETPOP_GENERAL=.
2. Family Health Service. *Schedule of Hong Kong Childhood Immunisation Programme*. 2022 Sep 16; Available from: https://www.fhs.gov.hk/english/main_ser/child_health/child_health_recommend.html.
3. Pharmacy and Poisons Board of Hong Kong. *Search Drug Database*. 05-01-2024; Available from: https://www.drugoffice.gov.hk/eps/drug/productSearchOneFieldAction2.
4. Ministry of Health, Labour and Welfare. *Basic knowledge of polio and polio vaccine* 29-01-2018; Available from: https://www.mhlw.go.jp/bunya/kenkou/polio/qa.html.
5. Satoh, H., et al., *Polio vaccination coverage and seroprevalence of poliovirus antibodies after the introduction of inactivated poliovirus vaccines for routine immunization in Japan.* Vaccine, 2019. **37**(14): p. 1964-1971.
6. Ichimura, Y., et al., *The determinants of immunization coverage among children aged between 12 and 35 months: a nationwide cross-sectional study in Lao People's Democratic Republic.* BMC Public Health, 2022. **22**(1): p. 2259.
7. Food & Drug Department, *List of Drug Registration 06-06-2018*. 2018.
8. Imprensa Oficial. *Order from the Chief Executive No. 457/2017*. 2017; Available from: https://bo.io.gov.mo/bo/i/2017/49/despce_cn.asp#458.
9. Instituto para a Supervisão e Administração Farmacêutica. *Drug Information of Macao SAR* 2024; Available from: https://www.isaf.gov.mo/服務資訊/資料查詢/澳門特區藥品/.
10. Chinese Centre for Disease Control and Prevention. *Poliomyelitis*. Available from: https://m.chinacdc.cn/jkzt/ymyjz/kpyd/bdxcrb/jh/.
11. Lv, H., et al., *A Comparison with Adverse Events Following Immunization Associated with Sabin-Strains and Salk-Strains Inactivated Polio Vaccines in Zhejiang Province, China.* Vaccines (Basel), 2022. **10**(2).
12. Jiangsu Commission of Health. *Notice on adjusting the polio vaccination program starting from 1 Jan 2023*. 2022 2022-09-23; Available from: https://wjw.jiangsu.gov.cn/art/2022/9/23/art_7312_10613527.html.
13. Shanghai Municipal Health Commission. *Shanghai will adjust the immunization schedule for polio vaccine and measles-containing vaccine*. 2020 2020-07-27; Available from: https://wsjkw.sh.gov.cn/gzdt1/20200728/d6440867ce9947898e463ba654c8a07f.html.
14. Zhejiang Provincial Center for Disease Control and Prevention. *Zhejiang Province is going to implement 4-dose inactivated vaccines for polio immunization programme*. 2023 2022-06-30; Available from: https://www.cdc.zj.cn/ywpd/mygh/ywdt/202306/t20230630_16499.shtml.
15. Aljunid, S.M., et al., *Economic impact of switching from partially combined vaccine "Pentaxim® and hepatitis B" to fully combined vaccine "Hexaxim®" in the Malaysian National Immunization Program.* BMC Health Services Research, 2022. **22**(1): p. 34.

16. ДУНДГОВЬ АЙМАГ ЗДТГ. *NEWS AND INFORMATION* Available from: https://www.dundgovi.gov.mn/mn/index.php?pid=439&nid=14217.
17. Department of Medical Device Control and Regulation. *List of vaccines registered in Mongolia.* 17-05-2021.
18. Pediatrics Infectious Disease Society of the Philippines. *Childhood Immunization Schedule 2023*. 03-2023; Available from: https://www.pidsphil.org/home/wp-content/uploads/2023/03/CHILDHOOD-IMMUNIZATION-SCHEDULE-2023-Edited.pdf.
19. Food And Drug Administration Philippines. *Human Drugs*. 05-01-2024; Available from: https://verification.fda.gov.ph/drug_productslist.php?cmd=search&t=drug_products&psearch=polio&psearchtype=&btn-submit=.
20. Korea Disease Control and Prevention Agency. *National Immunization Program for children*. Available from: https://www.kdca.go.kr/contents.es?mid=a30333000000.
21. Yang, K., et al., *Post-Marketing Safety Surveillance of a Childhood Pentavalent Diphtheria-Tetanus-Acellular Pertussis-Polio and Haemophilus influenzae Type B (DTaP-IPV//Hib) Vaccine in South Korea.* Infect Dis Ther, 2023. **12**(2): p. 499-511.
22. Taiwan Centers for Disease Control. *Current childhood vaccination schedule*. 2019.
23. Taiwan Centers for Disease Control. *Polio vaccine* 31-8-2023.
24. Thu Duc City Medical Center. *Vaccination Schedule for Children According to the Extended Vaccination Program*. 2-2-2023; Available from: https://trungtamytethuduc.medinet.gov.vn/tiem-chung/lich-tiem-chung-cho-tre-theo-chuong-trinh-tiem-chung-mo-rong-cmobile15135-81992.aspx.
25. Drug Administration Of VietNam. *1900/QLD-KD*. 21-02-2019; Available from: https://dav.gov.vn/upload_images/files/1900_QLD_KD.pdf.