

SUPPLEMENTARY MATERIAL

Sampling Method

Weifang City, located on the east coast of China, has a total of 12 counties with 195 vaccination clinics. We ranked the vaccination clinics in each county according to the number of births in the clinic service area in 2020. Through systematic sampling, each county selected three vaccination clinics. The sample size of each vaccination clinic is distributed proportionally, according to the number of births (Supplementary Table S1).

SUPPLEMENTARY TABLE S1. The estimation of sample size in vaccination clinics.

County	Vaccination clinics	The number of births in 2020	Proportion (%)	Sample size
Fangzi	Clinic 1	1,140	71.65	37
	Clinic 2	265	16.66	9
	Clinic 3	186	11.69	6
	Subtotal	1,591		52
Gaomi	Clinic 1	512	55.05	69
	Clinic 2	278	29.89	37
	Clinic 3	140	15.06	19
	Subtotal	930		125
Hanting	Clinic 1	452	61.92	41
	Clinic 2	168	23.01	15
	Clinic 3	110	15.07	10
	Subtotal	730		66
Kuiwen	Clinic 1	1,425	43.67	70
	Clinic 2	1,088	33.34	54
	Clinic 3	750	22.99	37
	Subtotal	3,263		161
Linqu	Clinic 1	471	47.62	47
	Clinic 2	307	31.04	30
	Clinic 3	211	21.34	21
	Subtotal	989		98
Qingzhou	Clinic 1	346	49.08	52
	Clinic 2	216	30.64	32
	Clinic 3	143	20.28	21
	Subtotal	705		105
Shouguang	Clinic 1	1,299	67.41	107
	Clinic 2	391	20.29	32
	Clinic 3	237	12.30	19
	Subtotal	1,927		158
Weicheng	Clinic 1	607	60.58	57
	Clinic 2	339	33.83	32
	Clinic 3	56	5.59	5
	Subtotal	1,002		94

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County	Vaccination clinics	The number of births in 2020	Proportion (%)	Sample size
Zhucheng	Clinic 1	1,067	81.64	89
	Clinic 2	178	13.62	15
	Clinic 3	62	4.74	5
	Subtotal	1,307		109
Anqiu	Clinic 1	1,957	87.60	84
	Clinic 2	191	8.55	8
	Clinic 3	86	3.85	4
	Subtotal	2,234		96
Changle	Clinic 1	257	58.01	38
	Clinic 2	124	27.99	18
	Clinic 3	62	14.00	9
	Subtotal	443		65
Changyi	Clinic 1	972	76.12	34
	Clinic 2	201	15.74	7
	Clinic 3	104	8.14	4
	Subtotal	1,277		45
Total		16,398		1,174

Survey Method

Face-to-face and telephone interviews were conducted. Face-to-face interviews used two recruitment methods. First, we have surveyed caregivers who brought infants younger than three months of age to the clinics for vaccination. Caregivers could participate in the survey whether they came to the vaccination clinic to receive PCV or another vaccine. These caregivers did not know our survey before they came to the vaccination clinics. The duration of this method in each vaccination clinic was one working day. We define this as the first means in the face-to-face survey (Means 1).

When the first means was unable to reach the target sample size, we called caregivers who belonged to the vaccination clinic service area and had not accepted the survey. We invited them to come to the vaccination clinic to join in our survey. This is the second means used in the face-to-face survey (Means 2).

If the called party refused our invitation, investigators would ask them whether they were willing to accept the telephone survey (Means 3).

To explore whether data from the different survey means could be mixed, we selected two counties with more than 100 questionnaires; the number of different means questionnaires was relatively evenly distributed for analysis (Supplementary Table S2). We chose two districts, namely Shouguang and Linqu (Supplementary Table S3). We conducted a Chi-square analysis on the vaccination willingness and the participants' demographic characteristics (Supplementary Table S4).

SUPPLEMENTARY TABLE S2. Sample size of different survey means in each county of Weifang (n=1,085).

County	Face-to-face		Telephone	Total
	Means 1	Means 2	Means 3	
Fangzi	6	39	4	49
Gaomi	31	46	17	94
Hanting	18	45	2	65
Kuiwen	68	31	85	184
Linqu	46	37	43	126
Qingzhou	6	69	26	101
Shouguang	70	90	65	225
Weicheng	6	7	10	23
Zhucheng	32	20	32	84
Anqiu	47	8	4	59
Changle	15	20	12	47
Changyi	1	27	0	28
Total	346	439	300	1,085

SUPPLEMENTARY TABLE S3. Pneumococcal vaccination willingness among caregivers with different survey means in Shouguang and Linqu (n=351).

Survey methods		Total (%)	Willing (%)	Unwilling (%)	P
Face-to-face	Means 1	116 (33.05)	69 (59.48)	47 (40.52)	0.493
	Means 2	127 (36.18)	84 (66.14)	43 (33.86)	
Telephone	Means 3	108 (30.77)	71 (65.74)	37 (34.26)	

SUPPLEMENTARY TABLE S4. Characteristics of participants in different survey means (n=351).

Characteristic	Face-to-face		Telephone	P
	Means 1	Means 2	Means 3	
Child gender				
Male	58	70	56	0.720
Female	58	57	52	
Family type				
Single child family	41	51	57	0.025
Multiple child family	75	76	51	
Education level				
Elementary school or below	0	3	0	0.143
Junior high school	31	24	22	
High school/technical school/vocational school	32	33	23	
Junior college/bachelor degree	52	66	59	
Graduate degree	1	1	4	
Average annual household income (CNY)				
<50,000	22	27	19	0.667
50,000–150,000	68	77	67	
≥150,000	26	23	22	