

**Effect of household relocation on child vaccination and health service utilization in Dhaka, Bangladesh:
a cross-sectional community survey**

SUPPLEMENTAL FIGURES AND TABLES

Supplemental Table 1: Household wealth principal components analysis coding and variable loading

Indicator	Coding	Loading
Number of rooms	Continuous	0.337
Housing arrangement	1 = Free 2 = Rental 3 = Owned	0.235
Roof	1 = Natural roof (bamboo/thatch) 2 = Rudimentary roof (tin) 3 = Finished roof (cement/concrete/tiled) 4 = Other	0.392
Walls	1 = Natural walls (jute/bamboo/mud) 2 = Rudimentary walls (wood) 3 = Finished walls (tin/brick/cement) 4 = Other	0.316
Floor	1 = Natural floor (earth/bamboo) 2 = Rudimentary floor (wood) 3 = Finished floor (cement/concrete) 4 = Other	0.377
Cooking fuel	1 = Natural (wood/grass/dung) 2 = Coal/charcoal 3 = Kerosene 4 = Electricity 5 = Gas (liquid/biogas) 6 = Other	0.350
Drinking water	1 = Unimproved (unprotected/surface/bottled) 2 = Improved but not piped 3 = Improved and piped into yard or private dwelling 4 = Other	0.170
Sanitation	1 = Unimproved (open defecation/hanging/open or broken pit) 2 = Improved but not piped	0.374

	3 = Improved and piped sewer 4 = Other	
Mobile phone ownership	0 = No 1 = Yes	0.380

Note: 51% of overall variance was explained by the first component.

Supplemental Table 2: Using vaccination card plus maternal recall, vaccination coverage among children age 9-23 months and association with mobility status using univariate and multivariable models with modified Poisson regression

	Partial vaccination n=518 (21%)		Full vaccination ^a n=1906 (79%)		PR ^b	95% CI	p-value
<u>Univariate analyses</u>							
Mobility status	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>			
Residentially stable ≥ 24 months	243	19	1053	81	Reference		
Recently relocated ≤ 12 months	275	24	853	76	0.93	0.88-0.98	0.009
Demographics	<u>mean</u>	<u>SE</u>	<u>mean</u>	<u>SE</u>			
Number of children <5yrs in household	1.31	0.03	1.24	0.01	0.94	0.89-0.99	0.035
Age of index child in months	14.73	0.20	16.35	0.11	1.02	1.02-1.03	<0.001
Socioeconomics							
Mother's education	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>			
No education	207	41	303	59	Reference		
Some schooling	121	22	433	78	1.32	1.18-1.47	<0.001
Finished secondary	141	16	719	84	1.41	1.27-1.56	<0.001
> Higher secondary	49	10	451	90	1.52	1.36-1.69	<0.001
Occupation of household head							
Unemployed or other	26	15	147	85	Reference		
Daily labor	195	38	318	62	0.73	0.66-0.81	<0.001
Shopkeeper or merchant	124	19	538	81	0.96	0.88-1.04	0.287
Salaried service	173	16	903	84	0.99	0.91-1.07	0.752
Household wealth status (PCA ^c)							
Lowest	212	40	321	60	Reference		
Second	114	25	348	75	1.25	1.11-1.40	<0.001
Third	84	18	382	82	1.36	1.20-1.54	<0.001
Fourth	59	10	560	90	1.50	1.34-1.69	<0.001
Highest	49	14	295	86	1.42	1.26-1.61	<0.001
Health services knowledge							
Does <i>not</i> have knowledge of local hospital	127	28	324	72	Reference		
Has knowledge of local hospital	391	20	1582	80	1.12	1.05-1.19	<0.001

<u>Multivariable analyses with different models</u>			
Mobility, adjusting for demographics (# of children and age of index child)	0.93	0.88-0.98	0.007
Mobility, adjusting for socioeconomics (education, occupation, and wealth)	0.96	0.91-1.01	0.136
Mobility, adjusting for demographics and socioeconomics	0.96	0.92-1.01	0.138

^aFull vaccination coverage per Expanded Programme on Immunization includes 1 dose of BCG, 3 doses of polio, 3 doses of DPT, and 1 dose of measles vaccines.

^bPR, Prevalence Ratio.

^cPolychoric Principal Components Analysis was used to create a household wealth index including structural housing characteristics, cooking fuel, drinking water, and sanitation.

Supplemental Table 3: Using vaccination card only, vaccination coverage among children age 9-23 months who have vaccination cards and association with mobility status using univariate and multivariable models with modified Poisson regression

	Partial vaccination n=281 (19%)		Full vaccination ^a n=1222 (81%)		PR ^b	95% CI	p-value
<u>Univariate analyses</u>							
Mobility status	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>			
Residentially stable ≥ 24 months	156	18	715	82	Reference		
Recently relocated ≤ 12 months	125	20	507	80	0.97	0.92-1.04	0.469
Demographics	<u>mean</u>	<u>SE</u>	<u>mean</u>	<u>SE</u>			
Number of children <5yrs in household	1.23	0.03	1.21	0.01	0.98	0.93-1.04	0.543
Age of index child in months	14.4	0.27	15.9	0.15	1.02	1.01-1.03	<0.001
Socioeconomics							
Mother's education	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>			
No education	94	35	176	65	Reference		
Some schooling	57	17	286	83	1.28	1.15-1.42	<0.001
Finished secondary	93	17	461	83	1.28	1.14-1.43	<0.001
> Higher secondary	37	11	299	89	1.37	1.22-1.52	<0.001
Occupation of household head							
Unemployed or other	14	12	100	88	Reference		
Daily labor	89	33	184	67	0.77	0.68-0.87	<0.001
Shopkeeper or merchant	66	16	352	84	0.96	0.88-1.04	0.327
Salaried service	112	16	586	84	0.96	0.88-1.04	0.297
Household wealth status (PCA ^c)							
Lowest	84	32	179	68	Reference		
Second	67	24	211	76	1.12	0.99-1.25	0.062
Third	52	17	248	83	1.21	1.08-1.37	0.002
Fourth	42	10	381	90	1.32	1.18-1.48	<0.001
Highest	36	15	203	85	1.25	1.10-1.41	<0.001
Health services knowledge							
Does <i>not</i> have knowledge of local hospital	55	22	194	78	Reference		
Has knowledge of local hospital	226	18	1028	82	1.05	0.98-1.13	0.141

<u>Multivariable analyses with different models</u>			
Mobility, adjusting for demographics (# of children and age of index child)	0.98	0.93-1.04	0.582
Mobility, adjusting for socioeconomics (education, occupation, and wealth)	1.00	0.94-1.06	0.948
Mobility, adjusting for demographics and socioeconomics	1.00	0.95-1.07	0.888

^aFull vaccination coverage per Expanded Programme on Immunization includes 1 dose of BCG, 3 doses of polio, 3 doses of DPT, and 1 dose of measles vaccines.

^bPR, Prevalence Ratio.

^cPolychoric Principal Components Analysis was used to create a household wealth index including structural housing characteristics, cooking fuel, drinking water, and sanitation.