Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Description of the Included Surveys by Country

Country	Survey Year	Survey Name	Survey Design	Sampled Households	Response Rate
Afghanistan	2015	ADHS	Stratified, cluster sample	24,941	98%
Afghanistan	2014	ALCS	Stratified, cluster sample	20,786	96%
Bangladesh	2014	BDHS	Stratified, cluster sample	17,565	99%
Bangladesh	2010	BHIES	Stratified, cluster sample	12,240	100%
India	2014	IDLHS	Stratified, multi-stage sample	65,932	100%
India	2012	INSSO	Stratified, cluster sample	101,651	100%
Nepal	2015	NAHS	Stratified, cluster sample	4,320	NA
Nepal	2014	NMICS	Stratified, cluster sample	12,598	99%
Pakistan	2014	PSLSM	Stratified, cluster sample	17,989	100%
Pakistan	2014	PMICS	Stratified, cluster sample	57,351	96%

Abbreviations: ALCS, Afghanistan Living Condition Survey; ADHS, Afghanistan Demographic and Health Survey; BDHS, Bangladesh Demographic and Health Survey; BHIES, Bangladesh Household Income Expenditure Survey; INSSO, Indian National Sample Survey Organization, 68th round; IDLHS; Indian District Level Household Survey; NAHS, Nepal Annual Health Survey; NMICS, Nepal Multiple Indicator Cluster Survey; PSLSM, Pakistan Social and Living Standards Measurement Survey; PMICS, Pakistan Multiple Indicator Cluster Survey.

eTable 2. List of Intervention Coverage and Financial Risk Indicators and Data Sources

Indicator	Definition[1]	Country Specific Data Sources
Promotion and Prevention		
Improved water	The proportion of households whose main source of drinking water is an improved source.	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014,
Adequate sanitation	The proportion of households with improved toilet facilities.	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014

FP needs satisfied	The proportion of currently married women aged 15-49 who do not want any more children or want to wait two or more years before having another child and are using contraception	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014

At least one ANC visit	The proportion of women aged 15-49 years who received at least one visit from a skilled health provider during their last pregnancy.	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014
At least four ANC visits	The proportion of women aged 15-49 years who received at least four visits from a skilled health provider during their last pregnancy.	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014

DPT3 immunization	The proportion of children aged 12-23 months who received three doses of diphtheria, pertussis, and tetanus vaccine.	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014
Measles immunization	The proportion of children aged 12-23 months currently vaccinated against measles.	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014
BCG immunization	The proportion of children aged 12-23 months who received one dose of BCG vaccine.	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014

Polio3 immunization	The proportion of children aged 12-23 months who received three doses of polio vaccine.	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014
Exclusive breastfeeding	The proportion of youngest children under six months of age living with the mother who are exclusively breastfed.	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014

Care seeking for pneumonia	The proportion of children under 5 with suspected pneumonia who sought care from an appropriate health provider in the previous two weeks.	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014
Treatment Indicators		
Skilled birth attendance	The proportion of mothers who had their delivery assisted by a skilled health professional.	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS2014

Intuitional delivery	The proportion of women that had their birth taking place in health facility	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014
ARI treatment	The proportion of under five children who had presumed pneumonia (last episode) in the previous two weeks were treated with antibiotics	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014

Oral rehydration therapy	The proportion of under five children with diarrhea in the previous two weeks who received oral rehydration therapy (packets of oral rehydration salts, recommended home solution, or increased fluids) and continued feeding.	ADHS 2015, BDHS 2014, IDLHS 2014, NMICS 2014, PMICS 2014

Hypertension treatment	The proportion of persons with hypertension who are received antihypertensive medications to control their blood pressure.	BDHS 2011, IDLHS 2014
Diabetes treatment	The proportion diabetic patients received medications to control their diabetes.	BDHS 2011, IDLHS 2014

Financial Risk Protection		
Catastrophic payment	The percent of households in a population who face catastrophic health expenditure	ALCS 2014, BHIES 2010, INSSO 2012, NAHS 2014, PSLSM 2014
Impoverishment	The percent of households in a population who fell into poverty due to out-of-pocket health payments	ALCS 2014, BHIES 2010, INSSO 2012, NAHS 2014, PSLSM 2014

Abbreviations: ALCS, Afghanistan Living Condition Survey; ADHS, Afghanistan Demographic and Health Survey; BDHS, Bangladesh Demographic and Health Survey; BHIES, Bangladesh Household Income Expenditure Survey; INSSO, Indian National Sample Survey Organization (68th round); IDLHS; Indian District Level Household Survey (71th round); NAHS, Nepal Annual Health Survey; NMICS, Nepal Multiple Indicator Cluster Survey; PSLSM, Pakistan Social and Living Standards Measurement Survey; PMICS, Pakistan Multiple Indicator Cluster Survey.

[1]Indicators are selected according to WHO proposed guideline (WHO, 2015).

eTable 3. Slope Index of Inequality by Intervention in Five South Asian Countries

	Slope index of inequalities (95% confidence interval)				
Indicators	Afghanistan	Bangladesh	India	Nepal	Pakistan
Prevention indicators					
Improved water	62.9 (56.4-69.4)	6.5 (0.2-12.7)	0.22 (-0.6-1.05)	19.2 (13.7-24.7)	-5.5 (-8.1 to -2.9)
Adequate sanitation	72.2 (67.1-77.4)	64.6 (59.1-70.1)	71.4 (69.4-73.3)	35.8 (28.9-42.8)	83.8 (82.6-85.0)
FP needs satisfied	30.6 (20.6-40.5)	0.5 (-0.4-5.1)	22.2 (20.1-24.2)	5.4 (2.1-8.7)	27.7 (21.8-33.6)
At least one ANC visit	30.0 (23.7-36.3)	60.1 (55.3-64.9)	5.07 (2.07-8.07)	59.5 (53.0-66.0)	46.3 (43.3-49.3)
At least four ANC visits	27.9 (22.5-33.3)	52.3 (46.6-58.0)	15.2 (10.3-20.0)[1]	64.0 (57.4-70.7)	74.6 (72.7-76.5)
DPT3 immunization	23.5 (16.5-30.6)	12.6 (8..2-27.1)	21.3 (19.8-22.8)	8.0 (-0.1-16.2)	41.6 (34.9-48.4)
Measles immunization	10.3 (3.7-16.8)	24.1 (15.3-32.8)	15.4 (14.2-16.6)	7.8 (0.6-15.0)	37.3 (31.6-43.1)
BCG immunization	24.5 (19.1-29.8)	3.8 (0.9-6.7)	15.9 (14.6-17.2)	2.5 (-2.8-7.7)	23.3 (19.0-27.7)
Polio3 immunization	11.1 (5.3-16.9)	15.6 (6.5-24.7)	13.2 (12.1-14.2)	5.7 (-1.4-12.8)	21.1 (17.9-24.4)

Care seeking for pneumonia	17.2 (2.6-31.8)	12.0 (-14.2 -38.3)	5.7 (4.3-7.2)	24.2 (1.2-47.1)	22.7 (15.4-30.0)
Exclusive breastfeeding	3.1 (-0.8 - 14.2)	1.8 (-23.6-27.2)	0.7 (-0.4-1.7)	2.2 (-3.0 to34.4)	0.9 (-2.0 to 3.8)
Treatment indicators					
ARI treatment	7.5 (-7.8-22.7)	-3.8 (-6.5 to -1.1)	5.6 (4.1-7.1)	32.2 (15.9-48.6)	4.27 (-4.9 to 13.5)
Oral rehydration therapy	-2.4 (-11.4-6.5)	-10.6 (-34.9-13.6)	6.6 (4.5-8.8)	7.5 (-8.6-23.5)	10.7 (5.6-15.7)
Skilled birth attendance	65.7 (61.4-69.9)	41.1 (36.8-45.5)	50.9 (47.5-54.2)	69.5 (63.6-75.5)	65.5 (63.3-67.8)
Institutional delivery	66.0 (61.9-70.1)	61.3 (55.9-66.7)	20.8 (16.1-25.4)	64.9 (58.0-71.8)	65.3 (63.0-67.7)
Hypertension treatment	NA	31.3 (22.7-39.9)	16.6 (4.4-18.8)	NA	NA
Diabetes treatment	NA	58.5 (47.4-69.6)	16.8 (14.5-19.1)	NA	NA

Composite indices					
Composite coverage index	28.6 (22.0-35.3)	21.5 (14.8-28.2)	19.2 (17.1-21.4)	26.5 (20.8-32.2)	35.3 (32.2-38.3)
Composite prevention index	31.4 (19.2-43.6)	25.6 (7.3-43.8)	18.1 (2.8-33.5)	26.5 (11.5-41.5)	37.0 (21.4-52.6)
Composite treatment index	38.6 (16.0-61.1)	35.9 (8.7-63.2)	22.9 (-11.2-57.0)	49.4 (29.0-69.8)	39.5 (13.9-65.2)

Abbreviations: ANC, Antenatal Care; ARI, Acute Respiratory Infection; DPT3, Three Doses of DPT Vaccine; Polio3, Three Doses of Polio Vaccine; FP, Family Planning; NA, Not Applicable

[1]At least three antenatal care visits

eTable 4. Slope Index of Inequality in Catastrophic Health Payments in Five South Asian Countries

Country and year	Inequality in catastrophic payments (%)[1]					SII (Q5:Q1)
	Q1 (Poorest)	Q2	Q3	Q4	Q5 (Richest)	
Afghanistan (2014)	13.4 (12.0−14.9)	16.2 (14.8-17.6)	14.9 (13.6-16.3)	14.5 (143.3-15.8)	17.1 (15.7−18.6	3.0 (0.5-5.5)
Bangladesh (2010)	10.9 (9.5−12.5)	11.3 (10.0-12.8)	15.6 (14.0-17.3)	19.6 (17.8-21.6)	22.0 (19.5−24.7)	14.9 (11.3-18.5)
India (2012)	13.3 (12.9-13.8)	15.8 (15.3-16.3)	18.9 (18.4-19.5)	22.0 (21.4-22.6)	24.1 (23.5-24.7)	13.5 (11.9-15.1)
Nepal (2015)	11.8 (11.8−11.9)	10.2 (10.1-10.2)	10.5 (10.5-10.6)	14.8 (14.7-14.9)	17.1 (17.0−17.1)	10.4 (6.6-14.1)

Pakistan (2014)	4.9 (4.0−6.0)	3.9 (3.1-4.8)	4.0 (3.3-4.9)	4.6 (3.8-5.5)	4.7 (3.9−5.7)	0.2 (-1.3-1.7)

Abbreviation: SII, Slope Index Inequality.

[1]Catastrophic payments at 10% threshold of total consumption (Q1 is the poorest wealth quintile and Q5 is the richest wealth quintile).

eMethods. Measurement of Indices and Indicators

Composite Prevention and Treatment indices

A composite prevention index and a composite treatment index were estimated as the mean of prevention and treatment indicators respectively to trace the progress of overall prevention and treatment coverage. To estimate the composite prevention index, we included 11 prevention indicators: at least one antenatal care visit from a skilled health professional, at least four antenatal care visits from a skilled health professional, exclusive breastfeeding, family planning demand satisfaction, improved water, adequate sanitation, BCG, measles, DPT3, Polio3 immunizations and care seeking for pneumonia. The composite treatment index was developed based on four treatment indicators including skilled birth attendance, institutional delivery, ARI treatment and oral rehydration therapy. Both indices were developed based on random-effects meta-analysis.

Financial Hardship

With regard to tracking levels of financial coverage, the universal health coverage framework is somewhat simpler, proposing the use of two indicators: the incidence of impoverishment resulting from OOP health payments, and the incidence of financial catastrophe from the same cause.

Catastrophic health expenditure was estimated based on household total consumption. Healthcare payment is defined as catastrophic if it exceeds 10%of total household consumption. A non-poor household is considered as impoverished by medical expenses when it drops below the poverty line after paying for health services. A household's health expenditure was treated as impoverishing when its total per capita consumption

spending fell below the poverty line after paying for health care. We estimated the poverty line based on subsistence food expenditure as proposed by World Health Organization.[2,3] The poverty line was determined based on the average food consumption at the 45th and 55th percentiles of the total household expenditure of the respective countries. The details of the procedure for estimating the poverty line are as follows:

Step 1: Food expenditure share ($foodexp_h$) for each household is estimated by dividing the household's food expenditure by its total household consumption expenditure. Symbolically,

$$food\exp_h = \frac{food_h}{\exp_h}$$

Where $food_h$ is the household food consumption expenditure; and exp_h is the household consumption expenditure.

Step 2: Equivalent household size ($eqsize_h$**)** for each household is estimated as

$$eqsize_h = hhsize_h^{\beta}$$

Where, $hhsize_h$ represents the household size. Xu and her colleagues estimated the value of the power parameter β = 0.56 based on household survey data from 59 countries.[2,3] This equivalent scale is used, rather than actual household size, because in low-and middle-income countries household consumption expenditure increases with increases in household size but that increase is less than proportionate to the increase in household size.[3] Many studies to date have found consistent results by applying this estimated parameter value. [4-6]

Step 3: Equivalent food expenditure ($eqfood_h$) is calculated by dividing food

consumption expenditure by the equivalent household size for each household:

$$eqfood_h = \frac{food_h}{eqsize_h}$$

Step 4: The poverty line or equivalent per capita subsistence expenditure level (pl) is calculated from average food consumption expenditure in the 45th to 55th percentile range.

$$pl = \frac{1}{N_{i45-55}} \sum_{j=i45}^{i55} (eqfood_h)$$

Where,

i_{45} is the household in the 45th percentile of food consumption expenditure;

i_{55} is the household in the 55th percentile of food consumption expenditure; and

N_{i45-55} is the number of households in the 45th – 55th percentiles

Inequality Analysis

Accurate income data is difficult to gather in low- and middle-income countries because most income sources are related to business, agriculture, and fishing. Household consumption and expenditure data are also difficult to collect in small-scale surveys because they require a special set questionnaire. A proxy measure of economic status is to summarize household wealth.[7] This can be directly measure from household available assets, income, consumption or expenditure. Due to the lack of income or expenditure data in Demographic and Health Survey and Multiple Indicator and Cluster Survey, an asset-based wealth index was derived from common and available data about assets, housing and access to services using principal component analysis. All Demographic and Health Survey and Multiple Indicator and Cluster Survey data provided wealth quintile variable based on this index. However, the household expenditure survey data used consumption expenditure to derive household economic status. The income score or expenditure data were divided into quintiles, with quintile 1 (Q1) indicating the poorest 20% of households and quintile 5 (Q5) representing the richest. We calculated one absolute indicator of inequality (the slope index of inequality),[8,9] and one relative inequality indicator (the ratio of the outcome in Q5 to Q1). The absolute and relative measures can produce different results that may lead to different conclusions; therefore,

both measures are important in order to give a clear picture of inequalities. We calculated the slope and relative index of inequality with regression models. The slope index uses the coverage values in the difference in percentage points between individuals at the top and bottom of the wealth scale. We calculated the slope and relative index of inequalities by regressing against an individual's/household's relative rank in the cumulative distribution of socioeconomic position.

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