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Navigating healthcare to treat pediatric pneumonia requiring hospitalization in India: The caregiver's perspective

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Scan this QR code for the PREVAIL study group

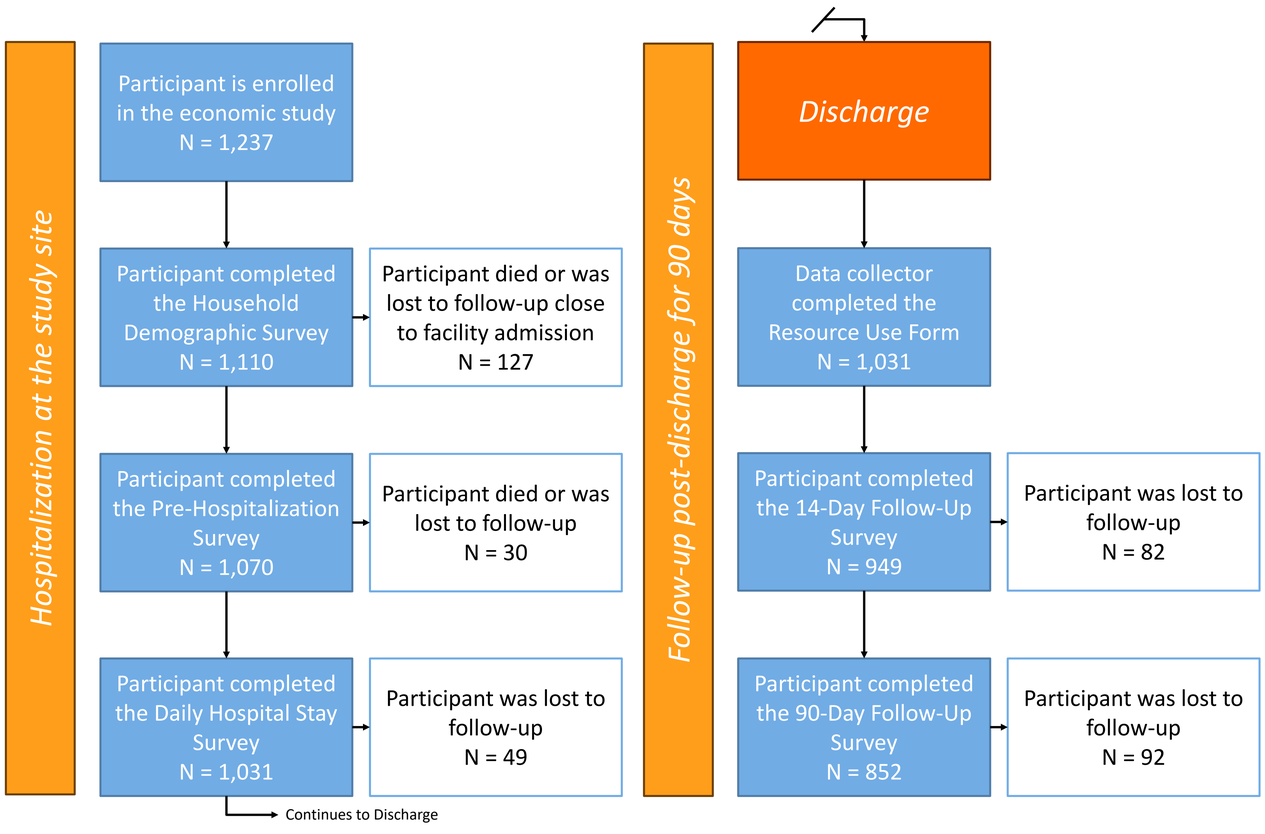
STUDY AIMS

Estimate the societal cost of an episode of suspected pneumonia for children hospitalized in a public hospital, including all healthcare sought in public and private institutions before admission and after discharge, and combining costs from the caregiver and the government's perspectives.

METHODS

- Caregiver interviews spanned from March 1, 2021, to March 1, 2022.
- Caregivers of children aged 1-35 months hospitalized for pneumonia in participating public hospitals in India were interviewed about expenses incurred due to the child's illness before admission, daily expenses incurred throughout the child's hospital stay, and general household characteristics. Medical records were consulted after discharge to document the cost and use of services at the facility.
- Caregivers were interviewed over the phone 14 and 90 days after patient discharge to capture any additional costs and estimate the full length of the case.
- Reported costs included direct medical costs (medications, clinic fees, medical procedures) and non-medical costs (travel to and from the facilities, meals, lodging). Indirect costs (productivity loss due to time spent in healthcare for the caregiver) were estimated using the human capital approach.
- Costs are reported in 2021 US dollars (USD 1 = INR 73.92; World Bank estimate).
- Nationally representative income strata from the 2011-2012 Household Survey on India's Citizen Environment & Consumer Economy (adjusted for inflation) were used to categorize households by wealth status.

PROCEDURE



*The **caregiver's economic cost** of a case of suspected pneumonia averaged **$111** for children admitted in a public hospital in India. This includes **$63*** in out-of-pocket payments representing **188%** of the household's monthly capacity to pay[†]. About **7.7%** caregivers experienced **catastrophic health expenditures**.*

RESULTS

Caregivers incurred on average **$110.67** (Standard Deviation [SD]=132.36) costs per hospitalized case of pneumonia, including $33.70 (SD=81.49) in direct medical and $25.89 (SD=28.06) in non-medical costs for a total of **$62.81** (SD=99.95) in out-of-pocket expenses, and **$47.25** (SD=57.81) in productivity losses associated with the average of 10 days (SD=8) spent away from the caregiver's occupation.

Most children (88%) recovered to full health within 14 days after discharge, spending an average of 2.8 days (SD=4.2) sick post-discharge. Forty-four children died (5%): thirty-seven within 14 days and seven within 90 days.

Comparatively to the private sector, public healthcare provided some level of financial risk protection, effectively shifting medical costs away from caregivers.

Accessing public healthcare early would have likely averted significant costs to the caregiver and prevented catastrophic health expenditures.

Costs that occurred because of the disease (they would not have occurred otherwise)

Proportion of caregivers who had costs (>$0) for this category

		*Before admission at the study site**				*While at the study site (public hospital)*				*After discharge from the study site**				
		Mean	Median	Standard deviation	% (cost > 0)	Mean	Median	Standard deviation	% (cost > 0)	Mean	Median	Standard deviation	% (cost > 0)	
Direct medical costs	Medication	$12.20	$1.35	$34.43	54%	$5.71	$0.00	$17.41	41%	$3.88	$0.00	$32.62	6%	*Costs from discharge to 14 days after*
	Medical investigations	$3.28	$0.00	$11.55	27%	$1.68	$0.00	$5.64	27%	$0.90	$0.00	$9.15	3%	
	Bed fees	$2.15	$0.00	$22.02	4%	$0.00	$0.00	$0.00	0%	$0.09	$0.00	$2.40	0%	
	Facility fees	$2.13	$0.00	$9.67	32%	$0.16	$0.00	$1.13	13%	$0.33	$0.00	$3.24	3%	
	\ TOTAL	**$19.76**	**$2.44**	**$60.90**	**58%**	**$7.55**	**$0.00**	**$20.78**	**42%**	**$5.20**	**$0.00**	**$43.18**	**6%**	
Direct non-medical costs	Transportation	$8.49	$2.71	$16.80	83%	$0.94	$0.00	$2.87	20%	$0.35	$0.00	$1.93	9%	
	Additional food	$2.49	$1.35	$3.70	63%	$8.90	$4.87	$12.27	77%	$0.81	$0.00	$4.20	11%	
	Additional childcare	$0.98	$0.00	$2.70	37%	$2.30	$0.00	$5.09	47%	$0.45	$0.00	$2.04	13%	
	\ TOTAL	**$11.99**	**$5.95**	**$18.85**	**93%**	**$12.45**	**$6.76**	**$16.63**	**79%**	**$1.77**	**$0.00**	**$7.94**	**19%**	
	All expenses (14-90 days)‡									**$3.65**	**$0.00**	**$24.01**	**13%**	*Costs from 14 to 90 days after discharge*
Indirect costs	**Income loss**	**$13.95**	**$6.09**	**$33.37**	**90%**	**$17.27**	**$13.34**	**$16.20**	**96%**	**$15.17**	**$4.23**	**$32.94**	**49%**	
	Time loss (days)	3.0 days	1.4 day	12.0 days	93%	3.8 days	3.0 days	3.3 days	98%	2.8 days	2.0 days	4.2 days	51%	*Costs from discharge to 90 days after*
	PERIOD TOTAL	**$55.40**	**$22.04**	**$153.69**	**99%**	**$38.89**	**$26.89**	**$40.26**	**99%**	**$24.84**	**$6.76**	**$61.75**	**61%**	

Children were **sick for an average of 6.5 days** (SD=7.0) before being admitted to a hospital (private or public).

About **46% of caregivers visited another facility** before the study site. Those who did visited an average of **three other facilities** before accessing the study site.

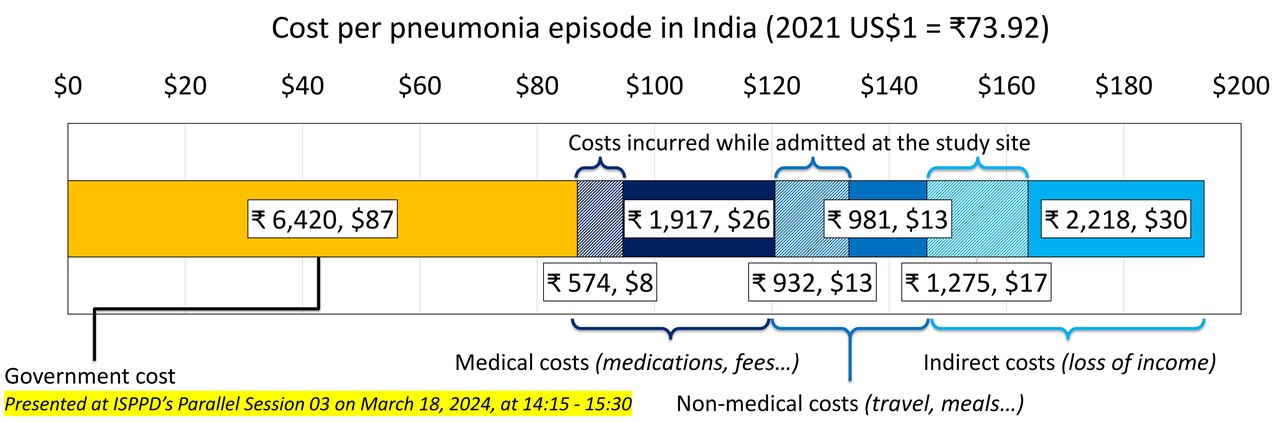
The **majority (59%) of the average medical cost** for an episode of pneumonia was incurred prior to admission at the study site, at other facilities, pharmacies, or non-institutionalized providers.

A quarter (27%) of caregivers became unable to pay for medical treatment before accessing the study site.

Caregivers who used private care before admission at a study site were **3.3 times more likely to be unable to pay for care**.

92% of the caregivers came from the poorest national income stratum (<$199 income per month) and 5% from the second poorest.

7.7% caregivers experienced catastrophic health expenditures[Δ]. A significant (34%) number of caregivers borrowed money or took a loan to cover the expenses and missed income. While nobody had to sell assets or livestock to afford care, it's possible that they do later to finance the loan or if they face new expenses. These households are financially vulnerable.



Pneumonia continues to take a heavy toll on India's most vulnerable households. While public hospitals reduce the economic burden on households, many costs are incurred prior to hospital admission.

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Funding

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Notes:

** Including public and private care (provided before and after admission).*
† Average household monthly expenses excluding food.
‡ All out-of-pocket expenses spent between 14 and 90 days after discharge, including medical and non-medical costs. It excludes indirect costs.
Δ Catastrophic health expenditures occur when the out-of-pocket payments exceeded 40% of the annual household expenditures excluding food.

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