

Diarrheal Episodes and Health Practices of Families in an Urban Slum in Mumbai: an Economic Analysis

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INTRODUCTION

- Populations in urban slums have less access to sufficient quantities of safe drinking water, affordable sanitation and thus, a higher burden of water-borne illness.
- This burden of disease carries real monetary costs in the form of lost wages as well as health care access and medicine costs from increased episodes of illness, and ultimately robs the marginalized slum populations of the few resources they possess.

SETTING Mumbai slum Kaula Bandar (KB)

- Located on land that officially belongs to the Mumbai Port Trust –(Federal)
- Limited access to civic services normally provided by the city government (sanitation services, water supply, etc)

OBJECTIVES

- Determine the baseline access to and costs associated with water and sanitation in KB
- Determine the monetary costs of waterborne illness to households in KB



METHODS

- A baseline survey to collect baseline data about water access, practices, sanitation and household expenditures of households
- A rolling survey of every slum household in the community with active cases of diarrhea to estimate the costs incurred, July 2011

RESULTS

Table 1: Household (HH) Characteristics	
n=203	
Avg # Members per Household	4.97
Avg Age of Household Members	15.6
% Female in HH	39%
% HH member wage earners	21%

Table 2: Household Economics, Monthly	
n=203	
1. Income (Rupees)	
<3999	17.8%
4000-6999	45.8%
>7000	36.6%
2. Household Expenditures (Rupees)	
Food	2898
Electricity	342
Rent	453
Cable TV	126
Kerosene	464
School Fees	52
*Toilet (toilet fees + \$ from time wasted)	617
Water	
0-149 Rs	5.9%
150-449 Rs	57.6%
>450 Rs	36.4%

Table 3: Water Practices	
n=203	
Do you treat your water?	No=39.4%
If yes, how do you treat your water?	
Boiling	34.1%
Adding Chlorine	3.3%
Adding Other Chemicals	2.4%
(alum, potassium permanganate, etc)	
Filtering	60.2%

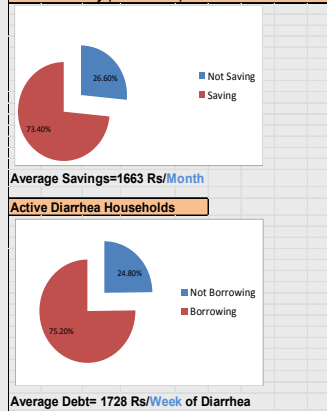
Figure 1: Hygiene Practices



Table 4: Costs of Diarrhea	
n=400, Weekly	
Extra Daily Expenses (Rs)	Mean
Toilet	12
Kerosene	37
Water	43
Water Collection Time	~16
Medical costs	
ORS	9
Provider Fees	234
Transport Costs	18
Medicine Costs	93
Wages Lost	113
Omitted Chores	~350
Total Wkly Cost	925Rs



Figure 2: Diarrhea: Turning Savings to Debt
Baseline survey (no diarrhea)



LIMITATIONS

- Data collection only from 1 season, limited data set
- Assignment of monetary value to tasks
- Accuracy of survey answers: stigma associated with answering sensitive questions



CONCLUSIONS

- Diarrhea is expensive (~925 rupees)
- Diarrhea is a financial shock to some households that results in debt
- Investment in clean water and sanitation would be financially viable through decreased water-borne illness

