

# The Impact of Out-of-Pocket Expenditures on Poverty and Inequalities in Use of Maternal and Child Health Services in Bangladesh

Evidence from the Household Income and Expenditure Surveys 2000–2010

COUNTRY BRIEF



## Summary

- Large inequalities exist in healthcare use by children in Bangladesh. The poor make less use of modern and public sector providers, and there has been little change between 2000 and 2010.
- The major factors driving this inequality are the perceived cost of obtaining treatment at public and modern providers, which deters poor families more than rich ones, and the reduced likelihood of poorer and less educated families recognizing their ill children as sick and needing treatment.
- Quality concerns are only significant determinants of use in rich families. Cost dominates the decisions of poor families.
- The treatment of children at Ministry of Health and Family Welfare facilities is as or more expensive as at private doctors, and much more expensive than at pharmacies and traditional providers. Despite the intention of the government to provide mostly free healthcare services at government facilities, the cost to families is the major barrier to increased use of government services.
- Higher costs of treatment at government facilities and at private doctors explain why most sick children are taken to pharmacies or traditional providers, where they are unlikely to receive appropriate treatment.
- The cost of medicines is the main reason for the high cost of visits to government facilities. This cost is a bigger burden for poor families and contributes to the inequality in healthcare use.
- Overall out-of-pocket expenditures by families to obtain medical care frequently impoverish them. Rates of medical impoverishment are very high by regional standards.
- Out-of-pocket expenditures on medical care are mostly by richer families. Expenditures by the poorest three-fifths of the population only account for 39% of total out-of-pocket spending.
- The findings suggest that if the government wishes to target additional resources to improve access for the poor, and, in particular, access to government facilities, one effective option would be to substantially reduce their out-of-pocket expenditure burden by increasing the supply of medicines in public facilities through increased budget allocations and more efficient supply systems.

## Healthcare Financing and Delivery in Bangladesh

The Government of Bangladesh is committed to reaching the Millennium Development Goals and to ensuring access of its population to adequate healthcare services. It has expressed this commitment through the development of an extensive infrastructure of government healthcare facilities, where treatment is intended to be available to patients mostly free of charge. In previous years, the government has reduced most user charges to improve access by the poor to Ministry of Health and Family Welfare (MOHFW) healthcare institutions, although there are proposals to introduce fees at the primary care level, while maintaining a safety net for the poor.

However, substantial inequalities exist in maternal and child health outcomes in Bangladesh, with child and maternal mortality rates being much higher in the poorest families than in the nonpoor, with the Demographic and Health Survey (DHS) 2007 reporting that the mortality rate for children under 5 years of age was twice as high in the poorest quintile as in the richest (National Institute of Population Research and Training, Mitra and Associates, and Macro International 2009). These are linked to large disparities in access to

services according to the DHS 2011 (National Institute of Population Research and Training, Mitra and Associates, Measure DHS, and ICF International 2012). Children with acute respiratory tract infections in the poorest families are only one-third as likely to be taken to a medical provider as those in the richest quintile, and similar three-fold disparities are seen in use of antenatal care by mothers (National Institute of Population Research and Training, Mitra and Associates, and Macro International 2009). Considerable evidence points to the poor facing significant financial barriers in accessing care, and experiencing substantial financial hardships as a result of having to pay for needed medical care.

According to the most recent National Health Accounts estimates (MOHFW 2010), per capita health spending in Bangladesh was around \$16 per capita in 2007, which is lower than comparable countries in the region. These data also show that there has been little change in the sources of financing over the past decade, with out-of-pocket spending accounting for 67% of total financing in 2007. Although spending in real terms has increased substantially in the past decade in Bangladesh, combined government and development partner spending has only just kept pace, with actual government spending as a share of overall financing falling from 36% to

25% and as a ratio to the gross domestic product falling from 0.95% to 0.84% between 1997 and 2007.

## Data Sources

This country brief presents findings from analysis of the Household Income and Expenditure Survey (HIES) rounds for 2000, 2005 and 2010 (Bangladesh Bureau of Statistics 2000, 2005 and 2010). The three surveys provide a basis to explore how utilization of health services has changed in 10 years, and how effective access is in practice. The surveys also permit examination of the patterns of child healthcare use in some depth and some limited analysis of maternal healthcare use.

The HIES is a nationally representative survey that is conducted every 5 years by the Bangladesh Bureau of Statistics, covering 7,440 households (38,515 individuals) in 2000; 10,080 households (48,969 individuals) in 2005; and 12,240 households (55,580 individuals) in 2010. These surveys include a detailed household consumption module, which was used here to categorize the population into equal quintiles of consumption per adult-equivalent as a measure of relative living standards. The HIES includes a health module that asked about illness and healthcare use in the previous 30 days for every individual.

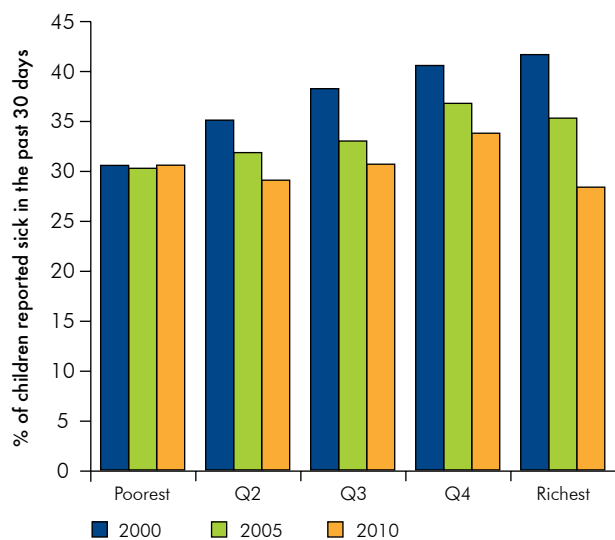
This country brief made extensive use of the HIES health module, but several limitations must be noted. First, the module only asks about expenditures related to treatment obtained when a person was ill, so it omits expenditures related to use of preventive and routine services, although expenditures for childbirth were covered. Second, the health module does not differentiate between inpatient and outpatient utilization, which is a key distinction and is one area where the design of the HIES compares poorly with other surveys in the region. Third, the categorization of reasons for seeking care is not adequate to reliably identify all maternal, neonatal, and child treatment episodes. Improved design of the survey would increase the country's ability to track and understand the problem of out-of-pocket spending and inadequate healthcare utilization.

Finally, while both the HIES general household consumption module and the health module inquire about healthcare spending, they use different recall periods and question wording, and produced different results. For example, household health spending as reported in the health module that uses a 30-day recall period is 2–3 times higher on an annualized basis as the general consumption module, which uses a 1-year recall period. These discrepancies are normal in this type of survey but can make interpretation of the results complicated. In this brief, the analysis used the health module (unless otherwise indicated) mostly for analysis of healthcare utilization but switched to the general consumption module when that was more appropriate or reliable, usually when looking at overall levels of healthcare expenditure.

## Perception of Illness and Seeking of Treatment

A key driver of whether ill individuals seek healthcare is whether they perceive themselves as sick. The three surveys asked whether individuals were sick in the 30 days preceding the survey. The proportion of individuals who reported that they were sick fell from 21% in 2000 to 18% in 2005 and 19% in 2010. The proportion of children reported as being ill decreased from 36% in 2000 to 33% in 2005 and finally to 30% in 2010 in the same period. However, self-reporting of sickness in a survey is an unreliable indicator of the real level of illness. In 2000 and 2005, the proportion of those reporting ill health increased with income, a trend that was particularly marked in the case of children aged less than 5 years. The 2010 data show an equalization in this pattern, with less clear differences in children reported sick between the quintiles (Figure 1).

**Figure 1: Illness Reporting in Children (<5 years old) in Bangladesh, by Socioeconomic Status, 2000–2010**



Q = quintile  
Sources: Authors' analysis of HIES 2000, 2005 and 2010 data sets.

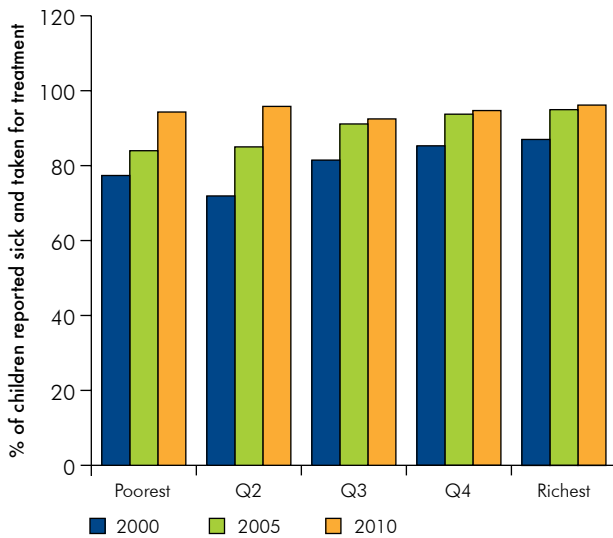
When this is contrasted with the rates of child mortality and illness, which are almost twice as high in poor as in rich families in the DHS and other surveys, it indicates that a key explanation of inadequate use of healthcare in poorer families is reduced reporting and responsiveness to recognition of illness in both adults and children. This pattern of reduced reporting and responsiveness to illness by poorer mothers and children is common in many countries. It is linked usually to a lower level of health awareness among the poor, which in turn may be reinforced by less education and worse access to healthcare services.

During the 10-year period, the likelihood of individuals seeking treatment when sick increased from 78% in 2000 to 86% in

2005 to 92% in 2010, which is a positive trend, but with little change in children (29%–30% in the three surveys). While the 2000 and 2005 HIES data show that children of the poor are less likely to be taken for treatment when sick, there is much less difference between the quintiles in 2010 (Figure 2).

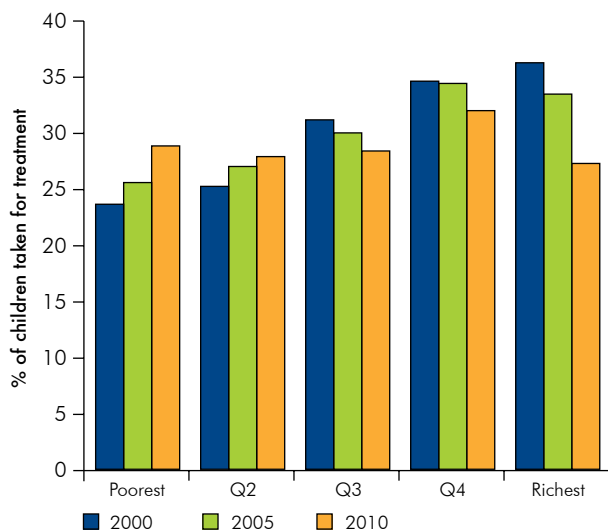
Consequently, the overall utilization of treatment, including the proportion of children being taken for treatment, is less pro-rich in 2010 than in the previous two survey years (Figure 3), although remaining inequitable overall.

**Figure 2: Proportion of Sick Children Taken for Treatment in Bangladesh, by Socioeconomic Status, 2000–2010**



Q = quintile  
Sources: Authors' analysis of HIES 2000, 2005 and 2010 data sets.

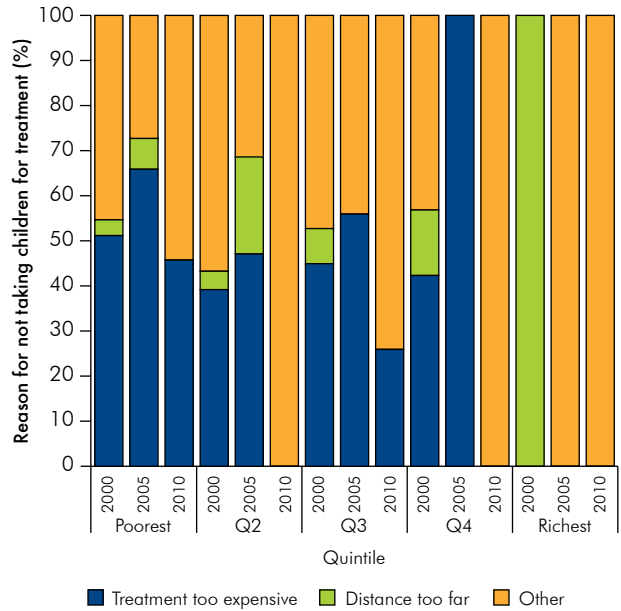
**Figure 3: Proportion of Children Taken for Treatment, Unconditional on Sickness in Bangladesh, by Socioeconomic Status, 2000–2010**



Q = quintile  
Sources: Authors' analysis of HIES 2000, 2005 and 2010 data sets.

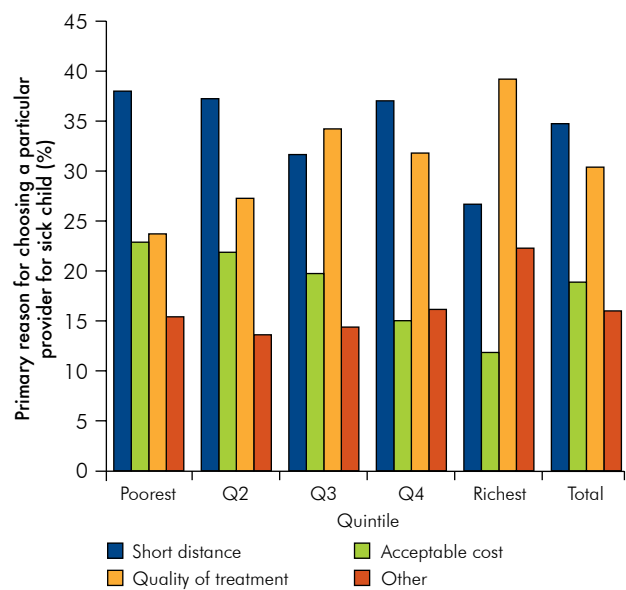
The three surveys also asked those who were sick but did not seek care their reasons for not obtaining care. For illnesses in children that were thought serious enough to require care, cost is far more important a reason for nonuse in the poor than in the rich (Figure 4). Distance to the provider is not a major barrier to care.

**Figure 4: Barriers to Treatment of Illness in Children in Bangladesh, by Socioeconomic Status, 2000–2010**



Q = quintile  
Note: As the percentage of children in the richest households who were not taken for treatment was low, the number of people asked the question was also small, and the estimates for the richest quintile are subject to larger sampling errors.  
Sources: Authors' analysis of HIES 2000, 2005 and 2010 data sets.

**Figure 5: Factors Influencing Choice of Provider for Sick Child in Bangladesh, by Socioeconomic Status, 2010**



Q = quintile  
Note: Reasons are given as percentage of all reasons after excluding "illness not serious enough".  
Sources: Authors' analysis of HIES 2010 data set.

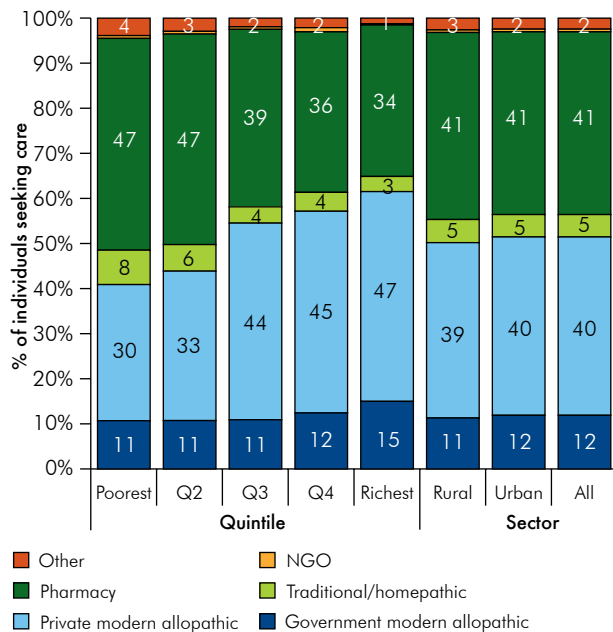
Overall, cost and distance barriers are far more important factors than quality for the poor in the choice of provider. When asked why a particular provider was selected when their sick child was taken for treatment, distance and cost emerge as the dominant factors in the case of the poor, while quality-related factors explain the choice for the nonpoor (Figure 5).

These findings indicate that improving physical access to facilities and the cost of medical care should be the priorities for increasing utilization by poor mothers and children and reducing inequalities in use in Bangladesh—not necessarily improving quality.

## Utilization of Health Services

The reduced perception of the poor that they and their children are ill, when they actually are, contributes to the inequality in use of healthcare services and probably ultimate health outcomes. Reinforcing this disparity is the pattern of providers sought for treatment, which changed little from 2000 to 2005. Many individuals did not seek care from an allopathic provider, with 6% in 2010 consulting instead with homeopathic and traditional providers (Figure 6). The use of nonallopathic providers is higher in the poor, and this disparity is even greater in the case of children (Figure 7).

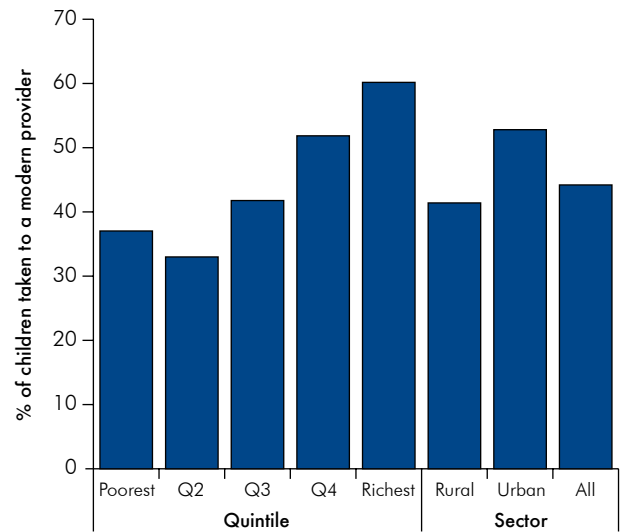
**Figure 6: Choice of Healthcare Providers When Individuals Are Ill, by Socioeconomic Status and Sector, 2010**



Q = quintile  
 NGO = nongovernment organization  
 Sources: Authors' analysis of HIES 2010 data set.

Figure 6 also shows that nongovernment organizations only account for a small proportion of medical care use (1% in 2010) in the HIES data, and do not significantly impact the overall patterns.

**Figure 7: Proportion of Sick Children Taken to Modern Provider in Bangladesh, by Socioeconomic Status and Sector, 2010**

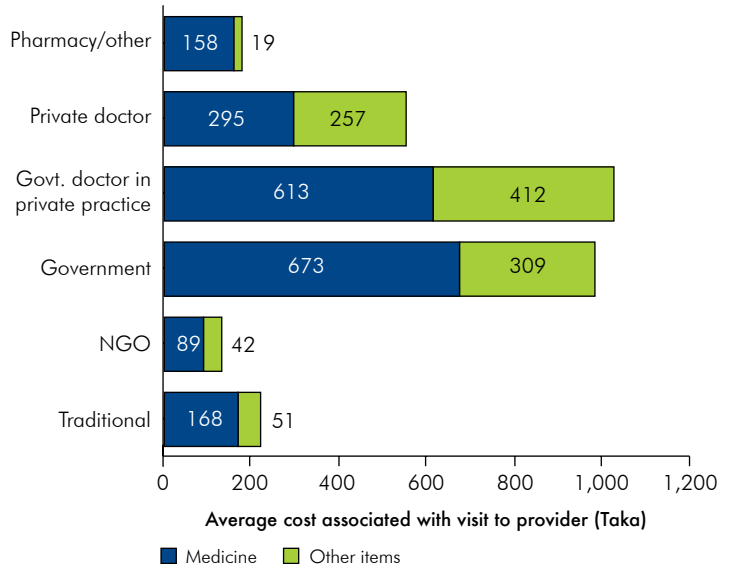


Q = quintile  
 Sources: Authors' analysis of HIES 2010 data set.

## Costs of Healthcare Providers

The government provides mostly free health services through MOHFW to improve access to services by the poor. However, the HIES data show that these services only account for a small share of overall modern healthcare use (Figure 6), with private doctors<sup>1</sup> accounting for more visits than government doctors. The HIES data on costs paid at different providers confirm that the major reason for this is cost. Visits to government facilities are as costly as visits to private doctors, and substantially more costly than visits to pharmacies, or traditional or homeopathic providers (Figure 8).

**Figure 8: Average Costs for Child's Visit to Healthcare Provider in Bangladesh, 2010**



NGO = nongovernment organization  
 Source: Authors' analysis of HIES 2010 data set.

<sup>1</sup> Inclusive of government doctors engaged in private practice.

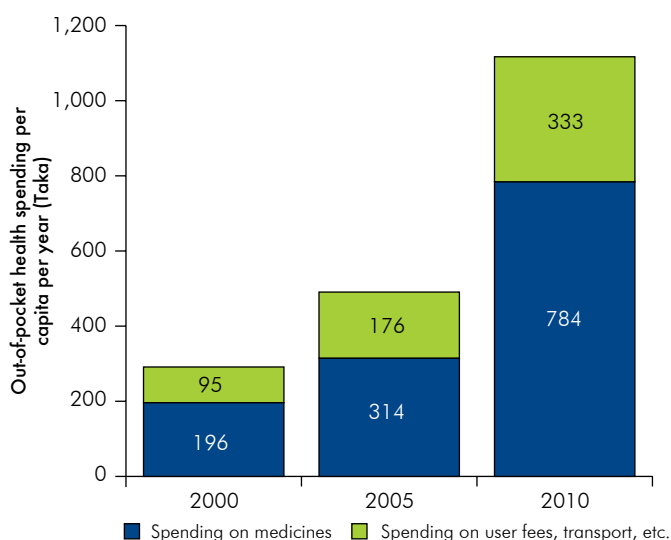
The 2010 HIES also shows that medicines account for the largest share of costs when visiting MOHFW facilities (Figure 8), suggesting that the major cost barrier at these facilities is the lack of free medicines. These cost patterns are similar for adults, indicating this is a general problem for all government medical services. The separate Patient Exit Survey 2011 confirms that lack of medicines is the largest cost barrier at government facilities. This reconfirms that the key financial barrier to use of MOHFW facilities by mothers and children is a lack of medicines, even more than the existing user fee charges.

## Out-of-Pocket Spending on Healthcare

Bangladesh's healthcare system relies predominantly on out-of-pocket financing (MOHFW 2010), and healthcare payments push large numbers of families into poverty (van Doorslaer et al. 2006). Although Bangladesh's National Health Accounts provide an overall assessment of the levels of out-of-pocket spending (67% of total healthcare financing in 2007), the HIES provides a different perspective on the distribution of spending and their impact on households.

If data from the general consumption module of the HIES are used, annual per capita out-of-pocket expenses on medical care increased from Tk291 (\$6) in 2000 to Tk491 in (\$8) 2005 and Tk1,117 (\$16) in 2010. This increase involved rises in all items of expenditure. Spending on medicines is, by far, the most important item accounting for 67% in 2000, 64% in 2005, and 70% in 2010 (Figure 9). Data from the health module of the surveys are consistent with this, although the details differ somewhat. They show that travel costs only contribute 1%, and that the spending pattern and levels for children resemble the adult pattern, with medicines accounting for similar shares of out-of-pocket costs (65% versus 66% overall in 2010). Overall spending for children accounts for 10% of total out-of-pocket health spending.

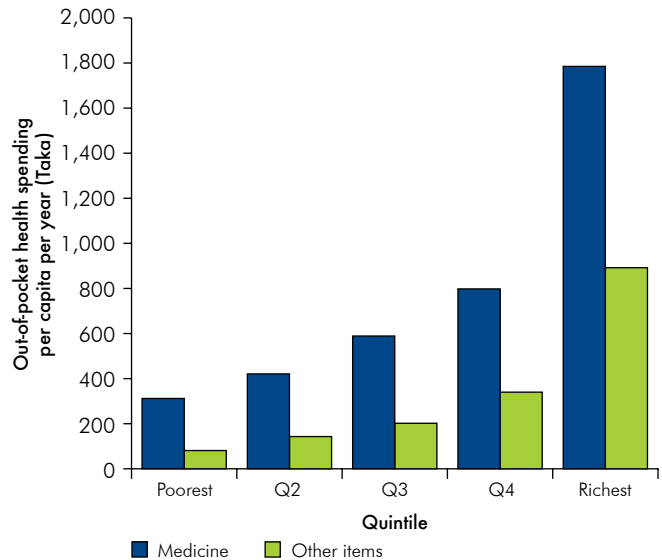
**Figure 9: Out-of-Pocket Healthcare Spending Per Capita Per Year in Bangladesh, 2000–2010**



Sources: Authors' analysis of general consumption modules of HIES 2000, 2005 and 2010 data sets.

However, there are enormous disparities in out-of-pocket spending by income level. Individuals in the richest quintile spend 7 times more overall than those in the poorest quintile, and 6 times as much in the case of medicines in 2010 (Figure 10).

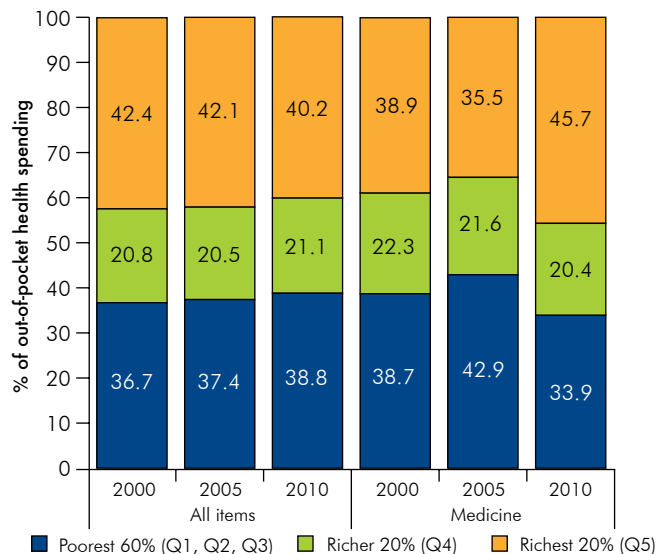
**Figure 10: Out-of-Pocket Healthcare Spending Per Capita Per Year in Bangladesh, by Socioeconomic Status, 2010**



Q = quintile  
Sources: Authors' analysis of general consumption modules of HIES 2010 data set.

As a consequence of the steep gradient in out-of-pocket health spending with household income, the bulk of out-of-pocket financing in Bangladesh's healthcare system is contributed by the richest quintile of individuals in the country (Figure 11). The richest one-fifth of the population accounted for 40%–42% of all out-of-pocket spending during this time, more than the poorest 60% (37%–39%). These shares changed little during the decade.

**Figure 11: Out-of-Pocket Healthcare Spending Per Capita Per Year in Bangladesh, by Socioeconomic Status, 2000–2010**



Q = quintile  
Sources: Authors' analysis of general consumption modules of HIES 2000, 2005 and 2010 data sets.

This skewed distribution suggests that even if the high level of out-of-pocket costs cannot be tackled immediately, it may be possible to reduce those faced by the poor, as they are only a small fraction of all such spending, yet represent a major barrier to care for them. The disparity remains when spending for children is examined using the health module data, but spending by the poor is allocated relatively more to medicines: 90% of healthcare costs for children in the poorest quintile, compared with only 54% in the richest quintile.

## Financial Impacts of Out-of-Pocket Expenditures

Out-of-pocket financing of healthcare can cause considerable financial hardship to families. Its impact can be assessed in two ways: (i) by how many households are pushed below the poverty line by such spending (i.e., impoverishing impacts), and (ii) by how many households have to devote a large share of their resources for medical treatment expenses (i.e., catastrophic impacts). Previous studies in Asia show that heavy reliance on out-of-pocket spending in healthcare financing results in high levels of medical impoverishment and catastrophic expenditures. These are particularly great in Bangladesh, owing largely to its heavy reliance on out-of-pocket financing for health (van Doorslaer et al. 2006, van Doorslaer et al. 2007).

The surveys show that the overall impacts on households remain large, but that there was some improvement during 2000–2010. The number of Bangladeshis in a given month falling below the international \$1 poverty line<sup>2</sup> as a result of their household’s out-of-pocket medical spending decreased from 4.0% to 3.1% to 0.7% in 2010. At the same time in 2010, every month 7% of families allocated more than 25% of their

monthly nonfood expenditures to healthcare costs, which is one measure of the extent of catastrophic expenditures (Figure 12).

Impoverishing impacts also occur when children are taken for treatment. In 2010, 0.1%, equivalent to 31,900 households in Bangladesh were pushed below the international \$1 poverty line in a given month owing to out-of-pocket spending to obtain medical care for children, with travel costs taken into account. Spending on maternity care also pushed 0.02%, equivalent to 6,400 households, below the poverty line in any given month in 2010.

These findings show that while the high frequency of catastrophic and impoverishing out-of-pocket health expenditures in Bangladesh has reduced since 2000, they still translate into frequent financial hardships when families seek care for mothers and children. Reducing such impacts will require addressing the overall causes of high out-of-pocket expenditures for health in Bangladesh.

## Conclusions

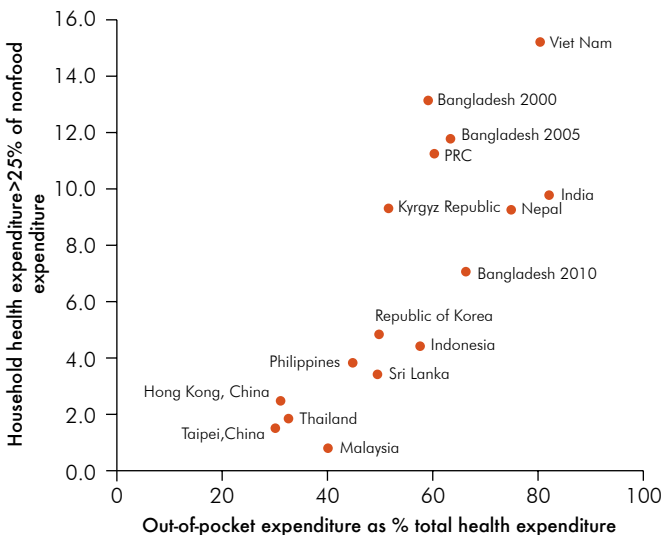
The three surveys show that poor families make less use of healthcare services and specifically modern providers when their children are ill. Compared to the nonpoor, they are also less likely to recognize that their children are sick. This disparity in use and perceptions contributes to the higher rates of child and maternal illness and mortality in the poor in Bangladesh.

Out-of-pocket costs are the key factor discouraging parents from taking children for medical treatment, impacting poor more than rich families. Distance to reach facilities is much less important, and quality issues have a significant impact on nonpoor households only. Similar factors influence the choice of providers, with cost also being the major factor influencing parents in choosing providers to treat their children. Sick children are rarely taken to a qualified government provider. Use of private providers, including pharmacies, shops, and traditional providers, dominates. Use of unqualified providers is more common in the poor than the rich. This is not surprising since cost is the key factor reported as affecting the choice of provider, and given that visits to government facilities are typically more expensive than the alternative options.

The high cost of visits to government facilities is primarily related to the cost of medicines. This suggests that the main reason sick children are rarely taken to government facilities is the inadequate provision of free medicines. This cost creates a bigger burden and financial barrier for the poor than the rich, and probably explains why the poor make even less use of public facilities than the rich.

These findings clearly show that financial barriers predominate in preventing access to and use of maternal and child health services in Bangladesh, and that government provision of services through MOHFW facilities is not fully effective in eliminating these financial barriers. MOHFW services are meant to be free or nearly free and to provide a safety net for the poor, but this is not the reality. Financial costs also cause significant hardships for families and contribute to poverty.

**Figure 12: The Incidence of Catastrophic Health Expenses and Reliance on Out-of-Pocket Financing in Regional Countries, Recent Years**



PRC = People’s Republic of China

Sources: Authors’ analysis of HIES 2000, 2005 and 2010 data sets, van Doorslaer et al. 2007, and forthcoming estimates by Equitap research network.

<sup>2</sup> Inclusive of government doctors engaged in private practice.

At the same time, out-of-pocket costs incurred by poor families are only a small fraction of all such spending. Sixty percent of all household health spending and 49% of spending related to treatment of children are by the richest 40% of Bangladeshis. Spending by the poorest three-fifths of the population only accounts for 21% of total spending, and 28% in the case of children. Policy interventions that target additional resources to improving access to the poor would be more affordable in the short term than solving the overall problem of high out-of-pocket spending.

One potential focus for this type of action is the lack of adequate medicines at MOHFW facilities. From a household perspective, this is the biggest gap in current government provision. The poor depend more on this provision than the nonpoor, but use of MOHFW services invariably imposes significant financial costs on them. Improving the supply of medicines at these facilities would require increases in the government budget allocations for medicines, as well as improving efficiency in medicines procurement and distribution systems, but the costs of doing this would be far less than any other interventions that aim to substantially reduce out-of-pocket spending in Bangladesh. Bangladesh policy makers may wish to emulate the recent decision of the Government of India, which has decided to focus on increasing the availability of free medicines at government health facilities as a first step in achieving universal health coverage.

Furthermore, because such costs are the major determinant of whether poor children are taken for care and where they are treated, such interventions would directly reduce current barriers to inadequate care of sick children in Bangladesh, and help increase use of critical medical services by mothers and children, a necessary step toward improving overall maternal and child health outcomes in Bangladesh.

## References

- Bangladesh Bureau of Statistics (BBS), Statistics Division, Ministry of Planning. 2000. *Household Income and Expenditure Survey 2000*. Dhaka.
- Bangladesh Bureau of Statistics (BBS), Statistics Division, Ministry of Planning. 2005. *Household Income and Expenditure Survey 2005*. Dhaka.
- Bangladesh Bureau of Statistics (BBS), Statistics Division, Ministry of Planning. 2010. *Household Income and Expenditure Survey 2010*. Dhaka.
- Ministry of Health and Family Welfare (MOHFW), Health Economics Unit. 2010. *Bangladesh National Health Accounts, 1997–2007*. Dhaka: Data International.
- National Institute of Population Research and Training, Mitra and Associates, and Macro International Inc. 2009. *Bangladesh Demographic and Health Survey 2007*. Dhaka.
- National Institute of Population Research and Training, Mitra and Associates, Measure DHS, and ICF International. 2012. *Bangladesh Demographic and Health Survey 2011 - Preliminary Report*. Dhaka.
- van Doorslaer, E., et al. 2006. Effect of Payments for Health Care on Poverty Estimates in 11 Countries in Asia: An Analysis of Household Survey Data. *Lancet*. 368 (9,544). pp. 1,357–1,364.
- van Doorslaer, E., et al. 2007. Catastrophic Payments for Health Care in Asia. *Health Economics*. 16 (11). pp. 1,159–1,184.

## Suggested citation

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## ADB RETA 6515 Country Brief Series

Poor maternal, neonatal, and child health adversely affects women, families, and economies across the Asia and Pacific region. This burden of illness must be reduced if the Millennium Development Goals (particularly 4 [reduce child mortality] and 5 [improve maternal health]) are to be achieved and improvements made in the health and economic well-being of households and nations. Progress in this regard will require an increased supply of effective healthcare services, as well as demand for such services. This series of country briefs provides evidence from national household surveys on the financial burdens imposed on the poor by private expenditures on public and private healthcare services. Countries can use this information in building awareness within health systems and policy bodies of financial constraints on healthcare, and in designing demand-side interventions to increase the use of maternal, neonatal, and child health services. Summaries of the analysis of household data from Bangladesh, Cambodia, the Lao People's Democratic Republic, Pakistan, Papua New Guinea, and Timor-Leste, and a summary overview, are included in the series.

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Australia is taking a leading role in global and regional action to address maternal and child health. A key part of this is to strengthen the evidence for increased financial support and the most effective investments that governments and donors can make to meet Millennium Development Goals 4 and 5. Australia supported this technical assistance project as a part of this commitment.

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