

Impact of out-of-pocket payments
for treatment of
non-communicable
diseases in
developing
countries:
A review of
literature



**World Health
Organization**

Department of Health Systems Financing

**IMPACT OF OUT-OF-POCKET PAYMENTS
FOR TREATMENT OF NON-
COMMUNICABLE DISEASES IN
DEVELOPING COUNTRIES:
A REVIEW OF LITERATURE**

by

Priyanka Saksena, Ke Xu and David B. Evans

**Discussion Paper No 2
Geneva 2011**

Department "Health Systems Financing" (HSF)
Cluster "Health Systems and Services" (HSS)

SUMMARY

The burden from non-communicable diseases is growing. At the same time, there is an increased focus on ensuring that people are protected against financial risks due to accessing care. In the context of these trends, a literature review to understand household financial burden due to NCDs was undertaken. The review found that households with NCDs spend a substantial share of their income on care for these diseases. Spending was even higher for hospitalization related expenditure. Some households faced catastrophic health expenditure and impoverishment as a result of spending. In addition, some households' longer-term financial status was also adversely affected through the accumulation of debt and other risk mitigating strategies. Undoubtedly numerous people also simply forgo needed care for NCDs as a result of financial barriers. Policies that increase financial risk protection offered to households with NCDs need to be implemented as part of broader social protection strategies.

INTRODUCTION

Universal health coverage has two important components. The first is the extent to which people are covered by the health services that they need. The second is the degree of financial risk protection they have in using services - e.g. do they suffer financially as a result of having to pay for the services they need. The World Health Report of 2010, entitled *Health Systems Financing: the Path to Universal Coverage* showed that over a billion people are unable to use the health services they need, while a 100 million people are pushed into poverty and 150 million people face financial hardship because they have to pay directly for the health services they use at the point of delivery (Xu et al. 2007; World Health Organization 2010).

While it is clear that the burden of non-communicable diseases is growing and is already a major problem even in the poorest countries, the questions of whether people have access to the services they need to prevent or control these diseases, and the extent to which they suffer financial catastrophe or impoverishment in obtaining the services they need is less well researched (Daar et al. 2007; Boutayeb 2006). This paper focuses on the second part of the universal coverage question, the impact of non-communicable diseases (NCDs) on the household finances of people who suffer from them.

Arriving at an accurate understanding of the household financial burden from NCDs would require national household surveys that seek information on the financial consequences of care-seeking behaviours. Respondents would also need to be able to identify accurately if their care-seeking is related to a non-communicable disease. There is little evidence of this nature, although it is growing, but even then it is important to reflect on whether respondents are able to accurately indicate whether their expenditures are really attributable to a non-communicable condition.

Most of the available studies focus on a specific type of non-communicable disease and hence are not sufficient for understanding the complete burden on households from all NCDs. Nonetheless, any literature on the topic provides useful evidence on the effects of NCDs on financial risk protection. In this paper, we undertake a literature review on household financial burden from non-communicable diseases and provide consolidated evidence on the topic to policymakers and well as to highlight areas that need more research.

METHODOLOGY

We conducted a review of journal articles and other documents on the household financial burden from NCDs in developing countries. We searched the Scopus search engine, which is an abstract based platform, for journals in the domains of: life sciences; health sciences; physical sciences; and social sciences and humanities. We searched for all combination of terms: non-communicable diseases; chronic; diabetes; cardiovascular disease; and cancer with the terms: finance; poverty; financial burden.

In this paper, we present all the literature that was found and which allowed us to identify the key financial impacts on households. The literature is quite varied in terms of methodology. Much of the literature on chronic diseases does not identify clearly if the focus includes chronic conditions outside of the disease complex of NCDs but we excluded data relating to communicable chronic illnesses where possible. Frequently, the household financial burden (and derived statistics) in these studies is only available for those who have NCDs or chronic illnesses, which is a less accurate way of identifying the true financial burden than if the studies reported expenditure for households with and without the illness. Lastly, this review simply extracts the results related to household financial burden from each study without commenting on the merits of methods that were used in each paper.

The findings from the literature were grouped into two sections: studies looking at NCDs in general; and studies looking at specific NCDs. For the latter, we have further grouped studies according to the disease they examine. Within these groups, the studies are presented according to alphabetical order by country.

RESULTS

Household burden due to non-communicable and chronic illnesses combined

In many of these studies it was not possible to be sure that the focus is limited to chronic non-communicable diseases.

Brazil: The study focuses on the richest people in an employer-based insurance scheme in Sao Paulo. Its findings suggest that among the richest, non-communicable diseases are responsible for more than 50% of the claims for highest spenders in the private health insurance plan. (Kanamura & D'Avila Viana 2007)

Burkina Faso: A subsample of 800 households from the Nouna Health District household survey was used to look at the incidence of catastrophic health expenditure. The study employed different thresholds of non-food expenditure (from 20-60% of non-food expenditure) to calculate the incidence of catastrophic health expenditure. Using multivariate regression analysis, it found that when a household member has a chronic illness, the odds of catastrophic financial consequences associated with paying for health services increased by between 3.3 and 7.8 fold. (Su et al. 2006)

China: 6157 households in Shandong and Ningxia were sampled using a multistage random design. The study compared expenditures of members of the New Cooperative Medical Scheme (NCMS), a voluntary health insurance scheme for rural residents, with non-NCMS members in the same areas. Reimbursement from the NCMS was quite low and only 8.67% of the expenditures of the households seeking care for chronic illnesses was reimbursed in Ningxia and 11.16% in Shandong. Pre-reimbursement health expenditure on medicines and health services relating to chronic diseases among NCMS members accounted for an average of 27% of their annual non-food per capita expenditure in Shandong and 35% in Ningxia. For non-NCMS members, spending on chronic conditions was 47% and 42% of non-food expenditure in Shandong and Ningxia respectively. The financial burden on poor households was generally higher than the burden for richer households. Between 14-21% of families in both provinces suffered from financial catastrophe because of these expenditures, defined as spending more than 40% of their non-food expenditure on chronic healthcare costs. (Sun et al. 2009)

China: 671 households in enrolled in the Medical Financing Assistance scheme in Wuxi and Qianjiang were interviewed. These households were all living below the official poverty line. Using multivariate regression analysis, the study found that households where there was at least one member with a chronic illness were 50% more likely than other households to have incurred debts of greater than 500 RMB (about US\$ 60 at that time). (Hao et al. 2010)

China: 3,340 households in six counties in Hebei and Shaanxi provinces were included in the study. The study uses a poverty threshold of US\$ 1 per person to examine the proportion of the population pushed under the poverty line because of health expenditure. The presence of chronic illness in the household was measured by the number of chronic illnesses over the number of members in the household. Among households with no chronic illness, only 3.8% were impoverished due to health expenditure prior to reimbursement. However, among households with chronic conditions, between 8.3-19.6% were impoverished due to health expenditure prior to reimbursement. Additionally, using multivariate regression, the study found that in the presence of chronic illness the odds of impoverishment increased by 4.28-16.84 times before reimbursement. However, after taking reimbursement from the various insurance programs into account, the odds of being impoverished in the presence of chronic illness was actually lower than for other households. (Shi et al. 2010)

India: The study focused on households with illness episodes in five resource poor locations in rural India. A total of 2,204 households within the catchment area of a few micro-insurance schemes were included in the analysis. Using multivariate regression, the study found that the cost of chronic illness was higher than the cost of non-chronic illnesses but no details of what impact these costs had on families, nor how much was reimbursed by the insurance schemes was provided. (Dror et al. 2008)

India: A study found that spending on NCDs accounted for 5.17% of household expenditure in a large national survey in India in 2004. This accounted for just under 50% of all household health expenditures. Using multivariate regression analysis, the study also found that the odds of incurring catastrophic hospitalization expenditures were nearly 160 percent higher for a patient with cancer than the odds of incurring catastrophic spending when hospitalization was due to a communicable condition. By comparison, the odds of incurring catastrophic hospital spending due to cardiovascular disease (CVD) were about 30 percent greater compared to communicable conditions that result in hospital stays. Catastrophic expenditure was defined in this study as out of pocket spending exceeding 30% of non-subsistence spending, where non-subsistence was based on the poverty line data from the Indian Planning Commission. (Mahal et al. 2010) These results should be interpreted with care because they focus only on people who were hospitalized.

India: A study of 3150 households from West Bengal found that among households who accessed health services, expenditure on chronic illness was 5.16% of total household expenditure. In comparison, spending on inpatient, outpatient and institutional deliveries were 11.55%, 4.03% and 3.96% of total household expenditure respectively. The study defined catastrophic expenditure based on thresholds of non-food expenditure. Using regression analysis, it finds that households with members who had chronic illnesses had a higher risk of incurring catastrophic health expenditures as compared to members who had sought outpatient care or inpatient care for undisclosed conditions or given birth at a formal provider. No details were provided of the proportions actually suffering financial catastrophe. (Mondal et al. 2010)

Georgia: 2859 households were surveyed in the Health Care Utilization and Expenditure study. The study defines catastrophic health expenditure using a threshold of 40% of non-subsistence expenditure finding that on average, 11.7% of household suffered financial catastrophe as a result of paying for health services. Using regression analysis, it finds that households with members with chronic illness are more likely to suffer catastrophic health expenditures than others. Although the incidence of financial catastrophe for households with and without chronic illnesses are not provided, it is clear that the incidence must be higher than 11.7% in those with chronic diseases. (Gotsadze et al. 2005)

Kenya: The study included 294 rural and 576 urban households in Kilifi district. It found that 5% and 5.7% respectively of household income was spent when care for chronic illnesses was sought in rural and urban areas. The burden for the poorest quintile was considerably higher than for the richest quintile, reaching 9.6% of their expenditure in rural areas and 11.8% of expenditure in urban areas during the recall period of the study. (Chuma et al. 2007)

Lebanon: The study includes 13,000 households. Catastrophic health expenditure was defined to occur when out of pocket health payments exceeded 25% of a household's expenditure adjusted for the number of people in the household. Using multivariate regression analysis, the study finds that the incidence of catastrophic health expenditure is significantly higher in households with chronic illness than in others. The overall incidence of financial catastrophe associated with out of pocket health payments was 5.2%, so those with chronic illnesses must have had a higher incidence. (Salti et al. 2010)

Russia: The study used eight rounds of the Living Standards Measurement Survey of Russia (1997-2004). It takes into account health expenditure on chronic illness, income loss related to chronic illness and non-health expenditure. It presents the separate and combined effects of these components of the overall financial burden using multivariate models. Direct health expenditure increases 6.2% for each additional case of chronic illness in a household. Earned income decreases by 4.8% but transfer income received from the state or from other households increases by 6.6% per case of chronic illness in the household. The net effect was that chronic illnesses reduced the amount that households could spend on other things, suggesting that chronic diseases reduced household overall welfare (Abegunde & Stanciole 2008).

Vietnam: Expenditure on noncommunicable illnesses was examined among 629 households in a larger study on health systems in Bavi district. The study reported that 27.7% of household health expenditure was on noncommunicable diseases, although this accounted for only 4.1% of total household expenditures. (Thuan et al. 2006)

Household burden due to specific non-communicable and chronic illnesses

A number of studies documented the household financial burden from specific illness and conditions. These are presented below:

Diabetes

India: 596 diabetic patients presenting at a private and a public hospital in Chennai were included in the study. The costs reported by the patients were validated against hospital records. In the private hospital, the poorest quartile of patients spent 24.5% of their income on diabetes care, compared to 3.5% in the richest quartile. In the public hospital, where median family income was much lower than in the private hospital, the poorest quartile spent 3.3% of their income on diabetes care while the richest quartiles spend almost 0% of their incomes on care. (Shobhana et al. 2000)

India: 557 diabetic patients at hospitals, clinics and GPs from seven states were included in the study. Patients were asked to report costs of diabetic care and their income. The study found that poorest households in urban areas spent 34% of their income on diabetes care, compared to 4.8% for the richest households. The poorest households in rural areas spent 27% of their income on diabetes care. compared to 5% for the richest households. (Ambady et al. 2007)

Sudan: Data from the families of 147 children with diabetes was collected. The median annual income of the households was US\$ 1,222. The median annual expenditure on diabetes care was US\$ 283 per diabetic child, so a family with one diabetic child spent just over 23% of its total income on medical care for that child. This was equivalent to 65% of all family expenditures on health. (Elrayah et al. 2005)

Cardiovascular disease

China: A study of 4179 hospitalized Chinese stroke survivors examined their expenditure on related in-hospital treatment, medication and equipment. The study adjusted for reimbursement from health insurance. Median household spending was 57% of household pre-stroke income in the three months after admission, but the range was very wide. The average was 158% of household income, suggesting that some households incurred very large expenditures. Catastrophic health expenditure was incurred by 71% of stroke survivors (which were defined as out-of-pocket health expenses in the three months after stroke that meet or exceed 30% of household income). Those without health insurance were hit particularly hard. Out-of-pocket expenses from stroke pushed 37% of patients and their families below the USD 1 per day per capita poverty line; 62% of those without insurance were pushed into poverty (Heeley et al. 2009)..

Cancer and potentially related illnesses

Pakistan: The data used in the study is from the Pakistan Socio-economic Survey Round 2, which included 4,021 households. Among people who sought care for cancers, 27% used unsecured loans, while 63.5% used personal savings. (Mahmood & Ali 2004)

Combinations of specific illnesses

India: A study used a subsample of a national survey. Information from 2,129 individuals hospitalized for CVD and 438 individuals hospitalized for diabetes was analyzed. The study found that hospital costs represented 30% of annual total household expenditure for CVD and 17% for diabetes patients. Poorer households had a significantly higher burden. (Rao et al. 2011) Again, this is not particularly useful as it does not identify what proportion of total household expenses are consumed by the medical costs of CVD.

Multiple countries: Niens et al. looked at the prices of medicines in 16 low and middle-income countries (Niens et al. 2010). Using data on medicine prices and data from the World Development Indicators, it calculated how many households would fall under the poverty line if all people with chronic diseases had access to the necessary medicines and paid for them out of their own pockets. If they purchased generic medicines for asthma, diabetes and hypertension, between 2-4% of the population of a number of countries would be pushed under a US\$ 1.25 poverty line. This result is, of course, not of great practical importance as many people do not get the medicines they need, and many do not have to pay the full price out of their own pockets if they do.

CONCLUSION

The literature is scattered, uses widely varied methods, and is plagued by problems linked to factors such as unrepresentative samples and the lack of control groups. Nevertheless there is sufficient evidence to draw the following conclusions.

First, NCDs of various types impose substantial financial costs on the people and households that seek care. After subtracting reimbursement from health insurance, the estimates across countries largely from Africa and Asia range from a low of 4.1% of household income/expenditure (Vietnam, chronic disease) to a high of 34% (poor people with diabetes in India). If the focus is on hospitalized patients, the proportion of household expenditures are, not unexpectedly, much higher reaching 158% of household income in the three months after being hospitalized for stroke in China (the median was 57%). There is some evidence that people go into debt to meet these debts in at least 2 of the countries that were studies.

While these figures may well overestimate the true costs because of the lack of controls in many instances, it is clear

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_28836

