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## **Health care system and household response to costs associated with illness in Nouna, Burkina Faso**

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The world is facing an infectious disease crisis of global proportions that is threatening the hard-won gains in health and life expectancy in the developing world and increasingly in the developed world. The response of the health care system and household to the costs associated with infectious diseases differ but the response of one affects and is influenced by the other which in turn impact on the performance of the health system as a whole in different settings. This dissertation aimed at examining the household and health care system response to the costs associated with illness or disease, and its impact on health system performance. Specifically, in the health care system, the dissertation estimates the costs of interventions and uses these cost estimates to demonstrate the need for context specific costs in cost-effectiveness analysis. It then explores household preferences by examining out-of-pocket expenditure on health care. Finally, it combines the household and the health system through community-based health insurance to harness resources and enhance utilization of health services.

Because of the interdisciplinary nature of the problem, methods were borrowed from different fields, including health economics, public health and demography. Primary data were collected for this research project through a 3-year panel survey of 800 households, and a survey of health facilities in Burkina Faso, upon which the dissertation was based.

Estimating disease and context specific costs of health care interventions that are essential for informing health care system sector wide resource allocation was done first. Costs of health interventions were analyzed using a step down costing procedure to allocate health care costs to interventions and diseases, based on diagnosis and treatment algorithms developed by the ministry of health and used in the health facilities. Management of pregnancy complications was found to have the highest unit cost (USD 41.1), while family planning consultation the lowest (USD 0.51) per visit. The results were then used to demonstrate with an example of cost-effectiveness analysis the need for local context specific costs of health care interventions in health care resource allocation. It was demonstrated that using local and context specific costs and non-context specific generate different cost-effectiveness rankings. Reflecting the fact therefore that the decisions based on these rankings point to different directions and therefore would potentially misguide local health policy.

The focus then shifted to the household response and explored household revealed preferences by examining out-of-pocket expenditure on health care. Household expenditure associated with illness were analyzed using econometric techniques (censored regression - tobit model) to estimate out-of-pocket expenditures for episodes of illness. It was revealed that households spend less out of pocket on malaria than on other conditions not because of self-treatment. There is also evidence that the households were more likely to choose self-treatment, because they felt competent to treat malaria. One of the strategies of the Roll Back Malaria is malaria home management. It would therefore be essential that the communities are first and foremost educated on the risks of inappropriate diagnosis and treatment and then taught to appropriately diagnose and treat malaria. In addition, out-of-pocket expenditures are greater when health care is sought from a qualified health worker than traditional healers or self-treatment is used. And, as more out-of-pocket expenditure is required for an illness episode, households sell off their assets to offset the expenditure, thus increasing the future economic vulnerability of the household.

Finally, the household and the health care system were linked by demonstrating how the out-of-pocket expenditure on health care and the resources of the health care system could be harnessed to improve the performance of the health system through community based health insurance. Results show that if the government and the donors maintain the current rate of contribution, the community-based health insurance is feasible. One point of caution however arises out of the results, and that is the enrollment size. If the enrollment is very low, the insurance may not be that viable. So policy will have to be improvised and either enroll whole households or villages so to attain enrollment levels where the insurance is financially viable and the risk of bankruptcy is low.

In conclusion, the results of the dissertation highlight that controlling tropical infectious diseases should not be limited to the development of new medical interventions, but rather should expand to include innovative ways of appropriately delivering health care interventions to the people in need. This appropriate way should aim at reducing the burden of disease as well as the financial and social burden.