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RESEARCH LETTER

The economic burden of out-of-pocket medical expenditures for patients seeking diabetes care in Mexico

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To the Editor: Diabetes is a pressing problem for the developing countries of the Americas, where the prevalence is expected to double between 2000 and 2030 [1]. Mexico is an example of the staggering burden of diabetes; the prevalence of diabetes in this country has increased from 7.2% in 1993 [2] to 10.7% in 2000, among those who are 20–64 years of age [3]. There has been a huge increase in the number of diabetes-related deaths in Mexico over the same period, with the annual number of deaths attributed to diabetes increasing from a constant 40,000 between 1979 and 1999 to 64,000 in 2004 [4].

An original article published in 2004 presented the dimensions of the economic impact of diabetes on public health expenditures in Mexico [5]. To further evaluate the problem of the burden of diabetes in Mexico, this brief report includes the results of an analysis of private health expenditures for diabetes care, determined through out-of-pocket costs and costs paid through private medical insurance.

Costs and the relative demand for different types of services required by patients with diabetes, and incidence rates for the most common long-term diabetes complications, were calculated using the methodology described in a previous article [5]. Cost data was obtained from a project that aimed to estimate the cost of chronic diseases in Mexico [6]. Service cost was estimated using an equation relating out-of-pocket expenses and private insurance to the total health expenditures in public and private institutions. This methodology has been described in detail elsewhere [5, 7]. Cost results of the 2004 National Health Survey were used as a reference, to compare the problems pertaining to equality in diabetic patients with those in the general population [8].

The different cost production functions were adjusted as a function of average diabetes case management at private institutions, determined by the consensus technique with private sector experts [8, 9]. Costs paid through private insurance were determined based on other studies reporting that for any disease there is a rate of expenditure for each particular complication [10]. We applied an equation determined by other studies [10–12] to calculate the out-of-pocket user expenditures for diabetes using the following two variables: relative weight of costs to the health system and relative weight of out-of-pocket user expenditures (in absolute numbers).

Table 1 shows the private health costs in two categories of analysis: direct out-of-pocket user expenditures and costs paid through private health insurance. On average, of the total expenditures in Mexico, 52% (US$162,252,503) corresponded to users' pockets and 3% (US$9,360,714) to costs paid by private insurance, while public spending represents 45%. It is particularly important to understand this in light of the distribution of diabetes care in the public and private sectors in Mexico. Table 1 also provides the cost of care for chronic complications of diabetes for the two major service categories. Nephropathy was the complication associated with the greatest cost (75% of the total cost of complications).

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Table 1 Costs for diabetic patients seeking care in the Mexican private health sector (in US$; year of estimation, 2005)

Item	Cost (US$)		
	Out of pocket	Private insurance	Total
Consultations/diagnosis	28,238,104	1,629,120	29,930,224
Drugs	62,940,675	3,631,191	66,571,866
Hospitalisation	18,879,467	1,089,198	19,968,665
Treatment of complications			
Retinopathy	4,175,541	240,896	4,416,437
Cardiovascular disease	7,307,195	421,569	7,728,764
Nephropathy	39,145,693	2,258,404	41,404,097
Neuropathy	835,108	48,179	883,287
Peripheral vascular disease	730,720	42,157	772,877
Total for treatment of complications	52,194,257	3,011,205	55,205,462
Grand total	162,252,503	9,423,714	171,676,217

Exchange rate at January 2005: 1 US$=11.15 Mexican $; taken from Arredondo A, Damian T, Ramos R, Zuñiga A, Carrillo C (2006) Costs and financial consequences of changes in the epidemiological profile on chronic diseases in Mexico, 1999–2005. Update of probabilistic models, January 2006, Technical report, INSP-University of Montreal International Development Research Centre, Montreal; $p<0.05$ (Box–Pierce statistical test) for out of pocket expenditure vs private insurance expenditure for all items

Overall, 90% of the Mexican population receive care provided by the government; this includes 48% via the government insurance system and 42% via services for the uninsured public sector. Only 10% of the Mexican population receive care from the private sector. In other words, dividing the health system into public assistance for the uninsured, individuals receiving social security and individuals insured by private institutions, we see that the financial sources are the federal, state and municipal governments, employers and users' pockets.

With respect to the distribution of health expenditures, it is noteworthy that of total health expenditures, 10% is allocated to the health needs of 40% of the population (the population outside the formal economy and without a right to social security); 45% is allocated to 50% of the population (those who belong to the formal economy and have a right to social security), and the remaining 55% of the expenditure is for the 10% of the population with purchase power [11, 12]. This means that for every US$100 spent on diabetes care in Mexico, US$55 benefits the 10% of the population covered by the private sector, while US$45 are used to provide care for 90% of the Mexican population.

The results of this analysis suggest a great disparity in the provision of care for diabetes in Mexico. This may produce poorer clinical outcomes for the great majority of the Mexican population, favouring disability by increasing the occurrence and worsening chronic complications, and increasing premature mortality among those affected by diabetes. These findings are similar to the results of a survey of chronic diseases [2], which reported increases in the rates of service demand for complications associated with chronic diseases as a result of problems related to access to health services [2]. It is a challenge for a middle-income country like Mexico to re-organise its health system with the aim of reducing inequalities in the use of resources dedicated to control diabetes and other chronic diseases.

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Duality of interest The authors declare that there is no duality of interest associated with this manuscript.

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