LETTERS

DIABETES: A GLOBAL CHALLENGE WITH HIGH ECONOMIC BURDEN FOR PUBLIC HEALTH SYSTEMS AND SOCIETY

The rapid growth of diabetes in older adults represents a global event with broad challenges for public health systems at a world level. As explained in Caspersen et al.,[1] diabetes and its complications are a great economic challenge for any health system, particularly when the disease is present in older adults. This is because of the high prevalence of complications in older adults in any society. Because diabetes represents an economic burden, the financial pressure that it places on public health systems might cause these systems to collapse. In this sense, the policy proposal to broaden public health systems and make them more effective is an urgent one for the globe and cannot be deferred.

In middle-income countries and in the United States, we face a global problem that is generating high catastrophic expenditures for all those involved. For example, in Mexico, a 2011 study, which followed the same methodology of a project study conducted in 2004,[2] was conducted to identify the costs generated by diabetes in older adults. The results indicated not only the high impact of costs on public health systems but also on patients' pockets. Indeed, the demand for older adult health care goes beyond the capacity of the public health system, and patients end up financing most of the care for their diabetes and its complications.[3]

As shown in Table 1, out of every $100 spent on health in Mexico in 2011, patients contributed $52 and the public health system contributed $48. This evidence has important implications in terms of equity and access to public health programs. Actually, there is a need to reformulate policies and programs for diabetes in older adults by emphasizing greater investments in public health actions for promotion and prevention. This is based on evidence of the economic burden that diabetes represents. It is a public health priority both for the health system and for society as a whole. By reprioritizing, patients' catastrophic expenditures will decrease and, above all, the high costs of temporary disability, permanent disability, and premature death generated by diabetes in older adults will diminish. ■

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TABLE 1—Direct, Indirect, and Total Costs for Health Care Service Providers Attributable to Diabetes: Mexico, 2011

	Health Care Service Provider					
Costs	SSA, $	IMSS, $	ISSSTE, $	User's Pocket, $	PHI, $	Total, $
Direct						
Consultations/ diagnosis	71 011 135	160 290 894	37 503 003	310 619 140	17 920 329	597 344 501
Drugs	158 133 310	357 498 753	83 514 756	692 347 435	39 943 108	1 331 437 362
Hospitalization	47 476 705	107 167 486	25 073 817	207 674 140	11 981 182	399 373 330
Retinopathy	14 437 970	32 590 336	7 625 104	45 930 958	2 649 862	103 234 230
Cardiovascular disease	13 125 455	29 627 576	661 913	80 379 150	4 637 260	128 431 354
Nephropathy	95 815 653	216 281 301	50 602 990	430 602 624	24 842 443	818 145 011
Neuropathy	4 725 155	10 665 924	2 495 485	9 186 191	529 973	27 602 728
Peripheral vascular disease	3 150 100	7 110 616	1 663 655	8 037 924	463 730	20 426 025
Total direct	407 875 484	921 232 855	215 410 719	1 784 777 553	102 967 888	3 432 264 499
Indirect						
Mortality	22 676 240	53 267 038	12 170 707	108 116 320	NA	196 230 305
Permanent disability	471 886 615	1 108 472 727	253 269 190	2 258 429 948	NA	4 092 058 480
Temporary disability	7 123 953	1 673 432	3 823 530	3 603 879	NA	16 224 794
Total indirect	501 686 808	1 163 413 197	269 263 427	2 370 150 147	NA	4 304 513 579
Total costs	909 562 292	2 084 646 052	484 674 146	4 257 895 588	102 967 888	7 736 778 078

Note. IMSS = Mexican Institute for Social Security; ISSSTE = Institute for Social Security and Services for State Workers; NA = not available; PHI = private health insurance; SSA = Ministry of Health. Costs are presented in US $; as of January 2012, the exchange rate was $ = 13.35 Mex$.
Source. Arredondo et al.[4]

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CASPERSEN ET AL. RESPOND

We thank Arredondo for his interest in our article and his description of the economic burden of diabetes for older adults in Mexico, a middle-income country. Clearly, many countries contribute to a huge and growing worldwide diabetes problem. Projections from 2010 to 2030 estimate that diabetes cases among adults aged 65 years and older will increase by 207% (from 27 to 83 million cases) in developing countries and by 81% (from 26 to 47 million cases) in developed countries.[1]

Correspondingly, the global economic burden from 2010 to 2030 is projected to increase dramatically for diabetes and its many complications and comorbid conditions.[2] Regarding comorbid conditions, which add to costs, diabetes co-occurs with many other chronic conditions more so among those aged 65 years and older than among those who are younger (6.5 vs 2.9 conditions, respectively) in the United Kingdom.[3] Governments of poorer countries spend less per capita on diabetes, leaving substantial costs to be paid by other means. Arredondo noted that older adult Mexicans with diabetes incur large out-of-pocket costs. Even in the more affluent United States, Medicare beneficiaries have an annual median out-of-pocket cost of $3241 per person.[4]

We agree with Arredondo concerning the urgent need for diabetes prevention efforts worldwide. We found that in the United States alone, almost 50% of older adults have prediabetes. Each day from January 1, 2011, approximately 10 000 adults turned 65 years old—an anticipated trend for the next 17 years.[5] The Diabetes Prevention Program[6] showed impressive declines in diabetes development through lifestyle intervention among older adults, pointing to the value of the National Diabetes Prevention Program led by the Centers for Disease Control and Prevention (http://www.cdc.gov/diabetes/prevention/about.htm) and a specific need to target older adults.

The sad truth is that intensive efforts are required to manage and prevent diabetes and its complications. Such efforts are compounded, for example, when physical activity programs must accommodate participants' differing physical functional statuses—from being homebound to being unimpaired and having no comorbid conditions—which vary across US states for inactive adults aged 50 years and older.[7] For this age group, those with prediabetes tend to have better physical function than those with diagnosed diabetes.[8] Clearly, physical activity programs must accommodate functional status[7] to help prevent or delay diabetes and its complications.

In all, Arredondo has highlighted the need for intensified public health efforts by all countries dealing with the unique national and individual burdens associated with diabetes management and prevention among older adults. ■

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***Note**. The findings and conclusions in this letter are those of the authors and do not necessarily represent the official position of CDC.*

Contributors

C. J. Caspersen and G. D. Thomas led the organization, writing, and editing of the response. All authors wrote sections of the response, revised the draft, and read and approved the final version.

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