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Burden of Type 2 Diabetes in Mexico: Past, Current and Future Prevalence and Incidence Rates

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Abstract

Introduction—Mexico diabetes prevalence has increased dramatically in recent years. However, no national incidence estimates exist, hampering the assessment of diabetes trends and precluding the development of burden of disease analyses to inform public health policy decision-making. Here we provide evidence regarding current magnitude of diabetes in Mexico and its future trends.

Methods—We used data from the Mexico National Health and Nutrition Survey, and age-period-cohort models to estimate prevalence and incidence of self-reported diagnosed diabetes by age, sex, calendar-year (1960–2012), and birth-cohort (1920–1980). We project future rates under three alternative incidence scenarios using demographic projections of the Mexican population from 2010–2050 and a Multi-cohort Diabetes Markov Model.

Results—Adult (ages 20+) diagnosed diabetes prevalence in Mexico increased from 7% to 8.9% from 2006 to 2012. Diabetes prevalence increases with age, peaking around ages 65–68 to then decrease. Age-specific incidence follows similar patterns, but peaks around ages 57–59. We estimate that diagnosed diabetes incidence increased exponentially during 1960–2012, roughly doubling every 10 years. Projected rates under three age-specific incidence scenarios suggest diabetes prevalence among adults (ages 20+) may reach 13.7–22.5% by 2050, affecting 15–25 million individuals, with a lifetime risk of 1 in 3 to 1 in 2.

Conclusions—Diabetes prevalence in Mexico will continue to increase even if current incidence rates remain unchanged. Continued implementation of policies to reduce obesity rates,

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Conflict of Interest

The authors declare no conflict of interest.

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increase physical activity, and improve population diet, in tandem with diabetes surveillance and other risk control measures is paramount to substantially reduce the burden of diabetes in Mexico.

Introduction

Diabetes is a leading cause of morbidity and mortality in the world, estimated to affect 285 to 347 million people across the globe (Danaei, et al, 2011,Shaw, et al, 2010), mainly concentrated in middle- and low-income countries. Worldwide diabetes prevalence has increased steadily over the last 30 years, going from 8.3% in men and 7.5% in women in 1980 to 9.8% in men and 9.2% in women by 2008(Danaei, et al, 2011). At current rates, diabetes will become the 7th cause of death in the world by 2030(Mathers and Loncar, 2006), resulting in significant life-years lost and associated disabilities. Diabetes global healthcare expenditures have been estimated to be at least USD$ 376 billion worldwide in 2010, and are projected to increase to $USD 490 billion by 2030(Zhang, et al, 2010).

Mexico is at the forefront of the diabetes epidemic. Having one of the highest obesity and overweight rates (71.2%) in the world (Anonymous, Food and Organization, 2013), diabetes prevalence in Mexico reached 14.4% in 2006(Villalpando, et al, 2010), with almost half of cases undiagnosed (7.07%). The prevalence of self-reported diagnosed diabetes has further increased from 7.34% in 2006 to 9.17% in 2012(Hernandez-Avila, et al, 2013). Diabetes control in Mexico is deficient with only 5.3% of diabetes patients currently under adequate control, and about 38% and 56% under deficient and very deficient control (Villalpando, et al, 2010,Hernandez-Romieu, et al, 2011). Annual average costs per diabetes patient in Mexico have been estimated to range from USD$ 700 to USD$ 3,200(Rodriguez Bolanos Rde, et al, 2010,Arredondo, 2012). Diabetes direct costs in Mexico amount to USD$ 717,764,787 for outpatient and USD$ 223,581,099 for inpatient care, plus USD$ 177,220,390 from indirect costs, without considering costs related to complications (Barquera, et al, 2013). Diabetes is a major public health concern in Mexico, particularly considering recent evidence which suggests that diabetes could be more lethal for Mexicans and Mexican Americans than for other ethnicities, increasing the potential burden of disease (Hunt, et al, 2011).

While estimates of diabetes prevalence in Mexico are available, no national incidence estimates exist. Previous cohort studies have reported an incidence rate of 1.4 cases per 100,000 people per year in low-income Mexico City residents (Burke, et al, 2001). Yet, considering the large disparities and heterogeneity in diabetes risk factors across the country (Villalpando, et al, 2010), it is unclear if other regions and socioeconomic strata experience similar rates. Lack of incidence information has negative consequences, as it hampers assessment and projections of diabetes trends, estimation of future costs, and the ability to predict the benefits of potential interventions.

In this paper we estimate diabetes age-specific prevalence and incidence rates in Mexico using three waves of a National cross-sectional health and nutrition survey, and age-period-cohort models. We then use these estimates together with age-specific mortality rates for Mexico, census population projections for 2010–2050, and a Multi-cohort Diabetes Markov Model to predict future incidence and prevalence of diabetes in Mexico.

Methods

Data sources

ENSANUT—The National Survey of Health and Nutrition (ENSANUT from its Spanish acronym) is a probabilistic, multistage, stratified, clustered nationally-representative survey. There are three rounds of data available; 2000, 2006 and 2012(Anonymous, Aguilar-Salinas, et al, 2003,Palma, et al, 2006,Gutiérrez, et al, 2012). On each wave, a total of 45,000 households, balanced across the country's 32 states, were visited. ENSANUT obtained demographic, nutritional and health related information from each household through a self-reported questionnaire which, when available, collected information from one child (10 years and younger), one adolescent (11–19 years) and one adult (20 years and older). For the current analysis only adults were considered.

We obtained individual data from all three ENSANUT waves including age at survey, gender, date of birth, self-reported previous diabetes diagnosis by a physician (*yes/no*), age at first diabetes diagnosis, and sampling weights. We combined the individual data from the three available waves and constructed diagnosed diabetes prevalent case and population tables by sex, age, survey year (period) and birth-cohort (5-year intervals). We also constructed life-tables by sex, age and birth-cohort (5-year intervals) to estimate the incidence of diagnosed diabetes. All data were expanded to the Mexican population using the sample weights and Stata survey commands (Stata 12.1, College Station, TX).

CONAPO population projections and Mexico mortality rates

Projected population counts by age (single year), gender, and calendar year (2010–2050) were obtained from the National Population Council of Mexico (CONAPO (Anonymous,)). Age-specific mortality rates by gender for 2010 were obtained from the National System of Health Information (SINAIS (Anonymous,)).

Age-period-cohort (APC) models

We used age-period-cohort models and the ENSANUT data to characterize the trends in age-specific diabetes prevalence and incidence in Mexico (Holford, et al, 2014,Keiding, et al, 1989,Keiding, 1991). Briefly, the models assume that the expected prevalence ($\text{Prev}_{i,j}$) and incidence rates ($I_{i,j}$) of diagnosed diabetes by age (i) and calendar year (j) satisfy:

$$\text{logit}(\text{Prev}_{i,j})=\log(A_i)+\log(P_j)+\log(C_k)$$

$$\log(I_{i,j})=\log(A_i)+\log(P_j)+\log(C_k)$$

Where A_i denotes a coefficient that adjusts for age (age-effects), P_j is a coefficient that adjusts for calendar year (period-effects), and C_k is a coefficient that adjusts for birth-year (cohort effects with $k=j-i$). Logit denotes the log of the odds ratio.

To deal with the well-known identifiability issue of APC models (Holford, 1991), we fitted models with either cohort (APC) or period (ACP) constrained to be 0 on average with 0 slope. We call these the APC and ACP models. We used the APC models to compute estimates of age-specific incidence and prevalence rates for selected years. These are an estimable combination of the three temporal factors and thus independent of any arbitrary constraints to solve the non-identifiabilty issue (Holford, et al, 2014,Holford, 1991). We also fitted two-effect models to assess the relative fit of models including either period or cohort effects. The Akaike Information Criteria was used to compare the relative goodness of fit of different models (Akaike, 1974).

All APC analyses were done using the Epi package in the R statistical software (R version 3.0.1). Age, period and cohort effects were modeled with natural splines, using five degrees of freedom/knots for age, period and cohort in the incidence models, and five for age and cohort and two for period in the prevalence models.

3. Markov models

We developed Multi-cohort Markov State-Transition Models (Siebert, et al, 2012) of diagnosed diabetes in Mexico similar to those developed by Narayan et al (Narayan, et al, 2003), Honneycut et al (Honeycutt, et al, 2003), and Boyle et al (Boyle, et al, 2010) for the US population. Briefly, separate models for male and females were constructed, breaking each population into 101 age-classes (single years from 0–100) and two disease-states (non-diabetic and with diagnosed-diabetes). We used the estimated diabetes 2010 prevalence as initial condition and then evolved the models using the estimated age-specific incidence of diagnosed diabetes, Mexico's 2010 mortality rates (keeping these constant into the future), and projections of the number of births per year during 2011–2050. To account for the differential mortality between individuals with and without a diabetes diagnosis, we assume a relative risk of mortality of 2.0 for people with a diabetes diagnosis, consistent with estimates in the US in the 1990s and early 2000s, and with earlier Markov models of diabetes in the US (Narayan, et al, 2003,Boyle, et al, 2010). We vary the relative mortality between 1.5 and 2.5 in sensitivity analyses. We assumed three scenarios for the age-specific incidence of diagnosed diabetes: the optimistic scenario assumes that future incidence will be similar to the estimated incidence for the year 2000, the middle-scenario assumes that future incidence will be equal to the estimated incidence for 2005, and the pessimistic-scenario assumes the 2010 incidence. Figure S2 in the supplementary material shows a schematic representation of the model. Simulations were performed in the R-statistical software (R version 3.0.1). R-code for the simulations is available from the authors by request.

4. Lifetime risk projections

We used the estimated age-specific incidence by men and women for the three incidence scenarios and mortality rates for the Mexico population by gender for 2010 to estimate the lifetime risk of diabetes for children born in Mexico in 2010.

Results

1. Prevalence

Figure 1 (top) shows estimated age-specific diagnosed diabetes prevalence rates for women and men in selected years. These were computed using APC models with cohort effects constrained to be 0 on average with 0 slope. The corresponding age, period and cohort effects are shown in the appendix. The figure shows the considerable increases since 1960 in prevalence estimated by the models in both women and men, with a particularly large increase in recent years. The estimated prevalence in both women and men increases with age, peaking around age 65–70 and then decreasing. The estimated period effects of APC models (shown in figure S1) show that the prevalence of diagnosed diabetes in Mexico for adults of ages 20 or older increased about 30% from 2000 to 2012 in both females and males, with most of the increase occurring between 2006 and 2012. Figure S2 shows the increase in prevalence rates from a birth-cohort perspective. Table S1 in the supplementary material shows the AIC of two-effect models, AP and AC prevalence models for men and women. For women, the AP model gives a better fit to the data than the AC model, whereas the AC model gives a better fit for men.

2. Incidence

Figure 1 (bottom) shows estimated age-specific diagnosed diabetes incidence rates per 1,000 individuals for women and men in selected years. These were computed using APC models with cohort effects constrained to be 0 on average with 0 slope. The estimated age, period and cohort effects are shown in the appendix (Figure S1). The results show the dramatic increases in incidence since the 1960s estimated by the models. The increase during recent decades is particularly significant, with the estimated incidence roughly doubling every 10 years. Figure S2 shows the increase in incidence rates from a birth-cohort perspective. Table S1 in the supplementary material shows the AIC of the AP and AC incidence models for men and women. For both genders the AP model fits the data significantly better than the AC model, suggesting that period effects may be more relevant than cohort effects in determining diabetes incidence in Mexico.

Table S2 and S3 show the consistency of the prevalence and incidence models by comparing estimates from the prevalence models, with incidence-based prevalence calculated using the incidence models. The tables also show the effect of differential mortality causing the downturn of prevalence for older ages. Tables S4 and S5 in the supplementary material show age-specific rates for selected calendar years by 5-year age-groups for women and men, respectively.

3. Projected diabetes rates

Figure 2 top shows projected prevalence of diagnosed diabetes for adult (≥ 20) Mexican women (left) and men (right) from 2010–2050 for the three incidence scenarios. The projections show that even assuming a constant incidence into the future (at the 2000, 2005 or 2010 level), the prevalence of diabetes will continue to increase in the coming years due to the aging of the population in Mexico. Table 1 shows the prevalence projections for 2030 and 2050 under the three scenarios. Depending on the incidence scenario, the prevalence of diagnosed diabetes is projected to increase from 9.62% in women and 8.38% in men in 2010 to 14.9–24.4% in women and 12.29–20.5% in men in 2050. These projections assume a mortality RR of 2.0 between individuals with and without diagnosed diabetes. Figures S5 and S6 show the prevalence projections when assuming 50% lower (1.5) or higher (2.5) relative mortality. A higher RR leads to about 10% lower prevalence since diabetics are removed from the population at faster rates. Independently of the assumer RR, the projections suggest a significant increase for all of the incidence scenarios.

Figure 2 bottom and Table 1 show projected number of Mexican women (left) and men (right) living with a diagnosis of diabetes from 2010–2050. The projected increases in prevalence and population growth (expected to reach ~150 million people in 2050) lead to a significant rise in the number of expected diagnosed diabetes cases under all incidence scenarios. In particular, a total of 15.48, 16.87, and 25.16 million prevalent cases are projected for 2050 under the optimistic, middle and pessimistic scenario, respectively.

4. Lifetime diabetes risk

Using a life table calculation, we estimate that the lifetime risk of diabetes for children born in Mexico in 2010 would be 34.3%, 38.1% and 53.3 % under the optimistic, middle and pessimistic scenario, respectively. For women the corresponding figures are 36.6%, 41.4% and 57.7%, and for men 32.2%, 34.8% and 48.8% under the optimistic, middle and pessimistic scenario, respectively.

Discussion

This study aimed to estimate current and historical age-specific prevalence and incidence of diagnosed diabetes in Mexico from National cross-sectional data through an age-period-cohort approach, and to project future rates based on a Multi-cohort Markov model of diabetes. In Mexico the age-specific prevalence of diagnosed diabetes increases roughly until age 65–70 in women and men, to then sharply decrease likely due to the higher relative mortality for diabetics versus non-diabetics. Similarly, age-specific incidence increases roughly until age 57 in women and 60 in men, rapidly decreasing afterwards. The decrease for older ages is likely due to the weeding-out of susceptibles and other sources of risk heterogeneity.

Newer generations of Mexicans experience a higher risk of diabetes than previously; in particular, our analysis suggest that those born in the 1960s have about a 5–6 fold higher risk for diagnosed diabetes than those born in the 1930s. This is likely the consequence of the large nutritional and physical activity changes experienced by the Mexican population over the last decades (Castro-Rios, et al, 2010), as well as the improvement in diabetes screening programs derived from the implementation of preventive programs such as PREVENIMSS (Dommarco, 2012). The significant increase in self-reported prevalence between 2006 and 2012 is likely consequence of increasing diabetes incidence rates, as well as improvements in health care access and diabetes surveillance. Our projections suggest that the already high diabetes prevalence rates in Mexico will likely continue to increase over the next decades, even if individual diabetes risk remains constant. Thus, we predict that diabetes will continue to exert a significant and increasing burden in the coming years in Mexico with the associated costs to quality of life, life expectancy, health care expenditures and productivity. This highlights the need for integral diabetes prevention and control strategies, including early detection and surveillance programs, obesity control measures, and public health policies designed to improve the nutrition of the population and reduce diabetes risk.

Our age-specific incidence estimates are consistent with those from other countries and regions (Carstensen, et al, 2008,Johnson and Balko, 2011,Bruno, et al, 2005,Narayan, et al, 2007). Notably, the age-specific profiles shown in Figure 2 are very similar to those found in diabetes registries in Denmark and Alberta Canada (Carstensen, et al, 2008,Johnson and Balko, 2011). The estimated increase in diabetes incidence by calendar year from 1995–2004 in Mexico is also similar to that reported in Denmark by Carstensen et al (30% and 42% in Mexican men and women, respectively vs ~42% in Denmark). Interestingly, we found that the age-specific incidence of diagnosed diabetes in Mexico does not seem to vary much by gender. This is consistent with the gender-specific incidence in Denmark, but not with the diabetes rates in Alberta Canada, which are characterized by significantly higher age-specific incidence in men (Carstensen, et al, 2008,Johnson and Balko, 2011). Our incidence estimates are also consistent with those from a previous study of diabetes in Mexico City by Burke, et al, which reported an incidence of diabetes (biochemically confirmed) in Mexico City of 1.42 and 1.21 per 100,000 person years for men and women, respectively, peaking between ages 45–55(Burke, et al, 2001).

With regards to diabetes prevalence projections, Shaw and colleagues predicted an increase in total diabetes world-prevalence from 6.4% in 2010 (285 million cases) to 7.7% in 2030 (439 million cases)(Shaw, et al, 2010). As for Mexico, Shaw et al. predicted a total diabetes prevalence in 2010 of 10.1% (6.8 million), increasing to 13.3% (11.9 million) by 2030(Shaw, et al, 2010). These estimations were based on diabetes prevalence estimates from the Mexico 2000 National Health Survey (ENSA); yet, according to the 2006 National Health and Nutrition Survey (ENSANUT), total diabetes prevalence had already surpassed 14% by 2006. Our projections are consistent with previous estimations by the International Diabetes Federation, which projected that 17.6% of Mexicans (16.4 millions) would have diabetes (undiagnosed and diagnosed) by 2030, occupying the 16th place among the countries with highest DM prevalence (Whiting, et al, 2011,Guariguata, et al, 2011). Our estimates of diagnosed (self-reported) diabetes for 2030 are 11.97% (11.4 million cases), 12.83% (12.2 million cases) and 18.29% (17.4 million cases), depending on the specific incidence scenario. These numbers further increase to 13.67% (15.48 million cases), 14.93% (16.87 million cases) and 22.52% (25.16 million cases) for 2050. Independently of the scenario, it is evident that diabetes prevalence will continue to increase in Mexico, becoming an even larger public health issue, unless immediate actions are taken. From an individual perspective, our projections translate to a lifetime diabetes risk of about 1 in 3 to 1 in 2, depending on the scenario. These lifetime risk projections are comparable with estimates for Hispanics and Black Women in the US (Gregg, et al, 2014).

Our study has a number of limitations. First, our estimations are based only on cross-sectional survey data. Nonetheless, the surveys span a period of 12 years and about 90 birth-cohorts, going back to 1910. Moreover, our age-period-cohort approach allows us to estimate past diabetes rates while constraining the estimates to be consistent with observed age-specific prevalence and incidence. Second, direct estimation of diabetes incidence from cross-sectional surveys are inherently biased downward because people with diabetes are less likely to survive for interview, "healthy respondent effect"(Holford, et al, 2014,Keiding, et al, 1989,Keiding, 1991). This may have also biased downward our estimated period or calendar-year effects for earlier years, although we expect the bias to be relatively small (tables S2 and S3). Unfortunately no estimations of age-specific mortality rates for diabetics in Mexico are available, precluding us from the possibility of adjusting our estimates for differential mortality between diabetics and non-diabetics (Keiding, et al, 1989,Keiding, 1991). We nonetheless did assume a higher relative risk of mortality for diabetics vs non-diabetics in the prevalence projections. Sensitivity analyses show that the conclusions are robust to different assumptions of the RR. Recall bias is also a potential issue, particularly among older participants. Nonetheless, our estimates are consistent with other age-specific incidence estimates from Mexico and with the age-specific profiles observed in other countries and regions. And if anything, our projections of future diabetes prevalence based on the estimated incidence are then conservative and an underestimation of future diabetes rates. Third, in common with any mathematical model, our projection framework is a simplification of the biological complexity of the natural history of diabetes and neglects the influence of various endogenous and exogenous modifiers of diabetes risk, like obesity and BMI, diet and levels of consumption of sugary products, and genetic susceptibility. However, no longitudinal information about nutrition and BMI, or genetic information is available from ENSANUT, so we could not incorporate these modifiers into our analysis. Fourth, our projections assume that diabetes incidence will remain constant into the future. It is plausible that the significant increase in diabetes incidence that we estimate to have occurred during 2006–2012 is an artifact of recent improvements in diabetes surveillance and detection in Mexico. And that our age-specific incidence estimations for 2010 are therefore an overestimation of the true rates. To address for this uncertainty, we made projections assuming that future incidence rates of diabetes will be similar to those in 2000 or 2005, which preceded recent efforts to enhance diabetes surveillance and early detection in Mexico. In all scenarios, we consistently found a significant increase in the prevalence of diabetes from 2010–2050. So independently of the assumed future incidence, the aging and growth of the Mexican population will continue to drive-up diabetes prevalence rates. Finally, our estimates are based on self-reported diabetes, which represents about half of the total diabetes cases. Therefore, the presented figures are likely an underestimation of the real impact that diabetes will have on the Mexican population.

Our analysis also has several strengths. In particular, this is the first estimation of national diabetes incidence and prevalence by age, calendar-year and birth-cohort in Mexico. Our analysis is based on a nationally representative survey, covering 13 calendar-years and about 90 birth-cohorts. Moreover, our APC approach allows us to make estimations of the prevalence and incidence of diabetes by age, calendar year and birth-cohort for years extending beyond the survey years. In particular, by using the self-reported age at first diagnosis of diabetes, we were able to estimate the incidence of diabetes by age going back to the 1950s. Our projections highlight the burden of diabetes in Mexico and are based on the best available data sources and thorough mathematical modeling analyses. In particular, the projections are based on models similar to those recently used in the US to project the incidence and prevalence of diabetes by race and gender (Honeycutt, et al, 2003,Boyle, et al, 2010,Narayan, et al, 2007,Narayan, et al, 2007).

Our results represent an important contribution to the literature that can serve as basis for future analyses evaluating the burden of disease in Mexico, measuring the impact of diabetes complications in the health system, and assessing the potential effects of interventions to prevent and control diabetes. Future work will extend our predictions to include estimations of the future burden of diabetes-associated conditions like, nephropathy, retinopathy, neuropathy and cardiovascular disease. To do this, we will integrate our incidence and prevalence models with more detailed diabetes natural history models, like the Michigan Model for Diabetes or the UKPDS (Zhou, et al, 2005,UKPDS Group, 1998,Reynoso-Noveron, et al, 2011). Moreover, we will extend our analyses to consider the effects of socioeconomic status, health insurance and obesity (BMI) on diabetes risk.

Mexico is undergoing an epidemiologic transition from infectious to chronic diseases at a fast pace, and is currently experiencing already significant rates of diabetes, cancer and cardiovascular diseases. Our findings suggest that diabetes will become an even greater public health problem in Mexico in the coming years, with about 1 in 3 to 1 in 2 individuals getting a diabetes diagnosis during their lifetime. This calls for the development of surveillance and monitoring sources to provide adequate information about the diabetes epidemic in Mexico. Our study contributes to further understand the diabetes landscape in Mexico, yet further efforts should be conducted to develop centralized diabetes registries to collect, analyze and inform diabetes related interventions, policy and research. Integral diabetes prevention and control strategies, including early detection and surveillance programs, and public health policies designed to improve the nutrition of the population and to reduce empty calorie consumption should be implemented to reduce the diabetes and chronic disease burden in Mexico.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Highlights

- Using health surveys we reconstructed the history of diabetes incidence and prevalence in Mexico
- Using a Markov Cohort Model we projected future prevalence up to 2050
- We found that diabetes incidence increased exponentially during 1960–2012, doubling every 10 yrs
- Projections suggest diagnosed diabetes prevalence could reach 13.7–22.5% by 2050
- At current rates, 1 in 2 to 1 in 3 Mexicans will be diagnosed with diabetes during their lifetime

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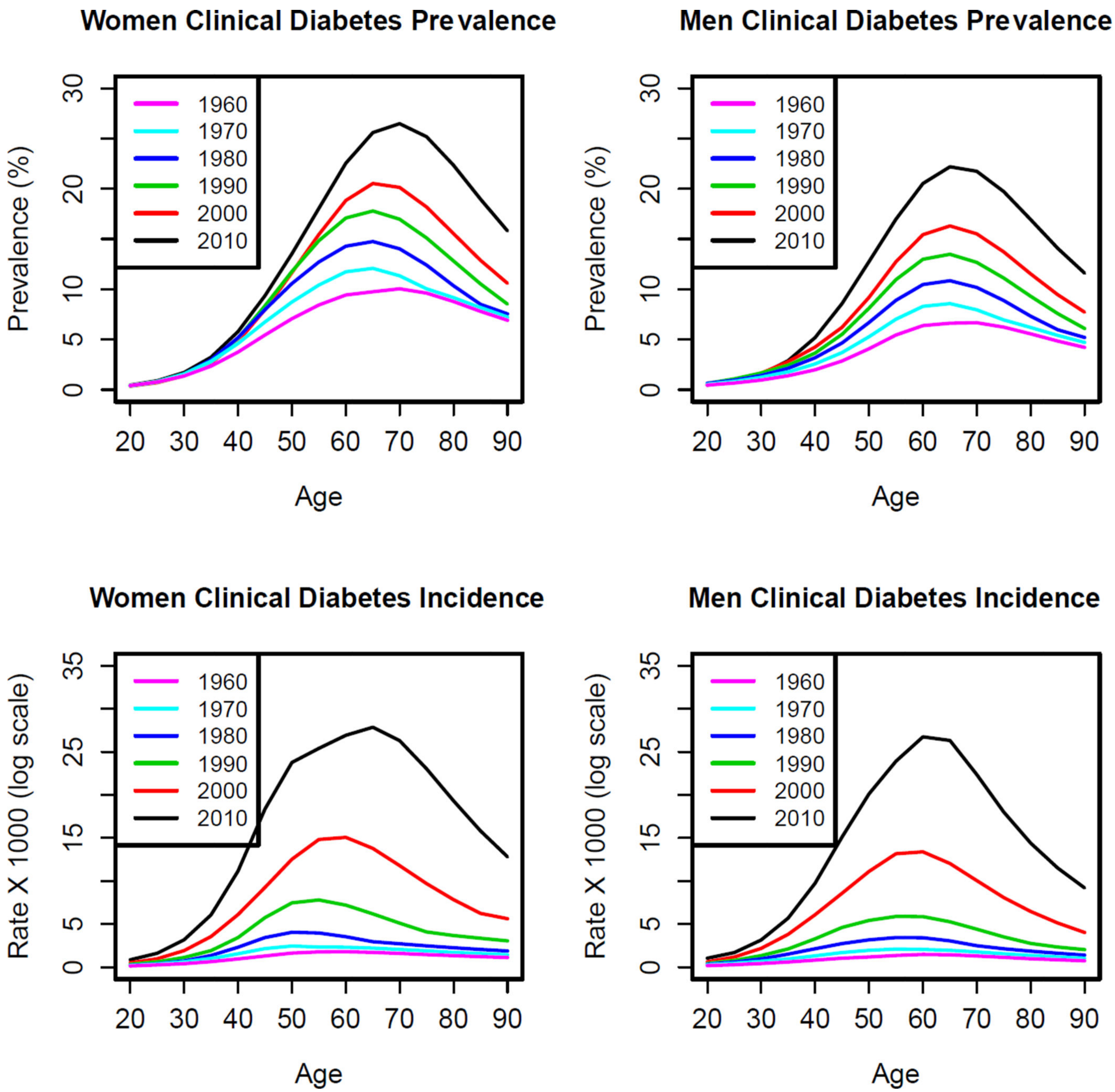

Figure 1.

Mexico clinical (Diagnosed) diabetes estimated age-specific prevalence and incidence by calendar year. Rates estimated from APC models with cohort effects constrained to be 0 on average with 0 slope. Top: Prevalence rate estimates; bottom: Incidence rate estimates. Left: Women; right: Men.

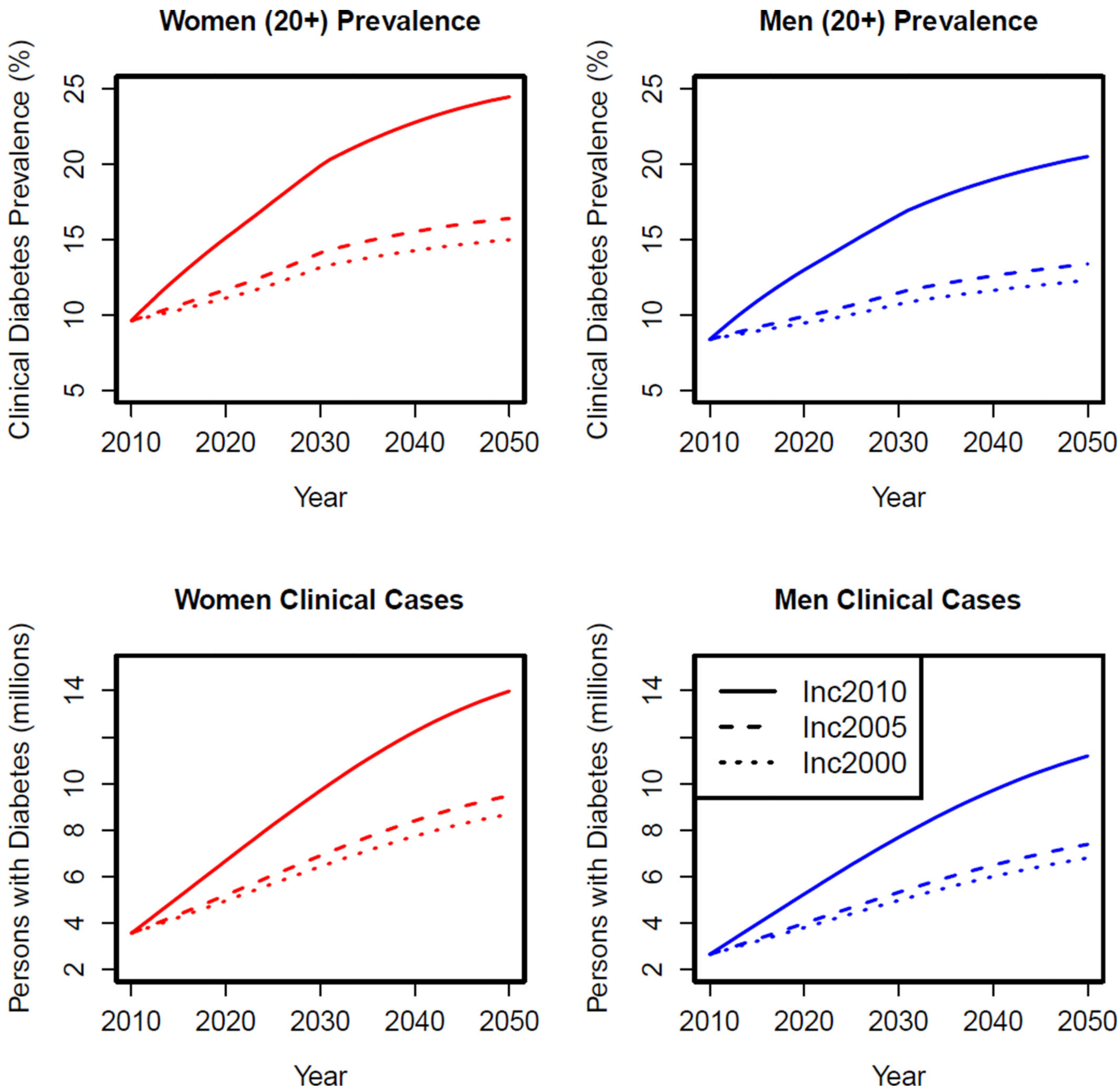

Figure 2.

Projected Diabetes Prevalence and Cases 2010–2050. Top: Projected clinical (self-reported) diabetes prevalence for women ages 20 or older (left) and men ages 20 or older (right) for three future incidence scenarios (incidence as in 2000, 2005 and 2010). Bottom: Projected number of women (left) and men (right) with clinical (self-reported) diabetes form 2010–2050. These correspond to the three future incidence scenarios (incidence as in 2000, 2005 and 2010). These assume a mortality relative risk of 2.0 between people with and without a diagnosis of diabetes.

Table 1

Projected Diagnosed Diabetes Prevalence (%, ages 20+) & Prevalent Cases (Millions)

	2010	**2030***			**2050***		
		Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3
Prevalence (% ages 20+)							
Women	9.62	13.14	14.11	19.87	14.98	16.39	24.44
Men	8.38	10.71	11.47	16.59	12.29	13.38	20.49
Total	9.02	11.97	12.83	18.29	13.67	14.93	22.52
Cases (millions)							
Women	3.570	6.428	6.901	9.700	8.683	9.481	13.976
Men	2.655	4.974	5.326	7.691	6.801	7.389	11.189
Total	6.225	11.403	12.228	17.391	15.485	16.870	25.165

* Scenario 1 assumes 2000 incidence; scenario 2 assumes 2005 incidence; scenario 3 assumes 2010 incidence.