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

Supplementary Material

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Figure S1. Mexico Diabetes from a Calendar-year (period) perspective. Age-Period-Cohort Models (APC models with cohort effects constrained to be 0 on average with 0 slope). Left: Age-effects; middle: Period-effects; right: Cohort-effects. Top: APC model of prevalence; bottom: APC model of incidence. Men are shown in blue (darker) lines and women in red (lighter) lines.

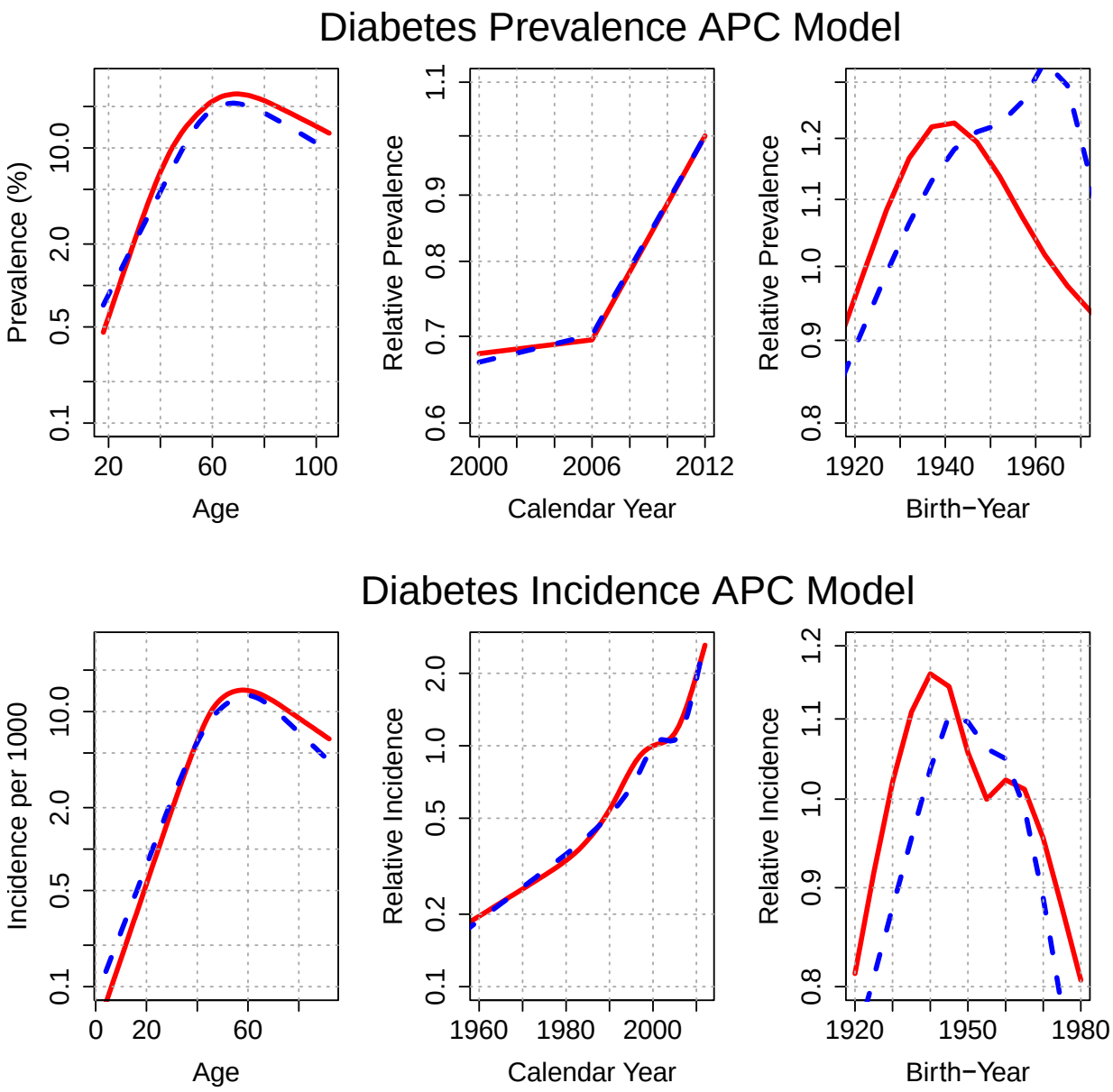

Figure S2. Mexico Diabetes from a Birth-Cohort perspective. Age-Cohort-Period Models (ACP models with period effects constrained to be 0 on average with 0 slope). Left: Age-effects; middle: Period-effects; right: Cohort-effects. Top: ACP model of prevalence; bottom: ACP model of incidence. Men are shown in blue (darker) lines and women in red (lighter) lines.

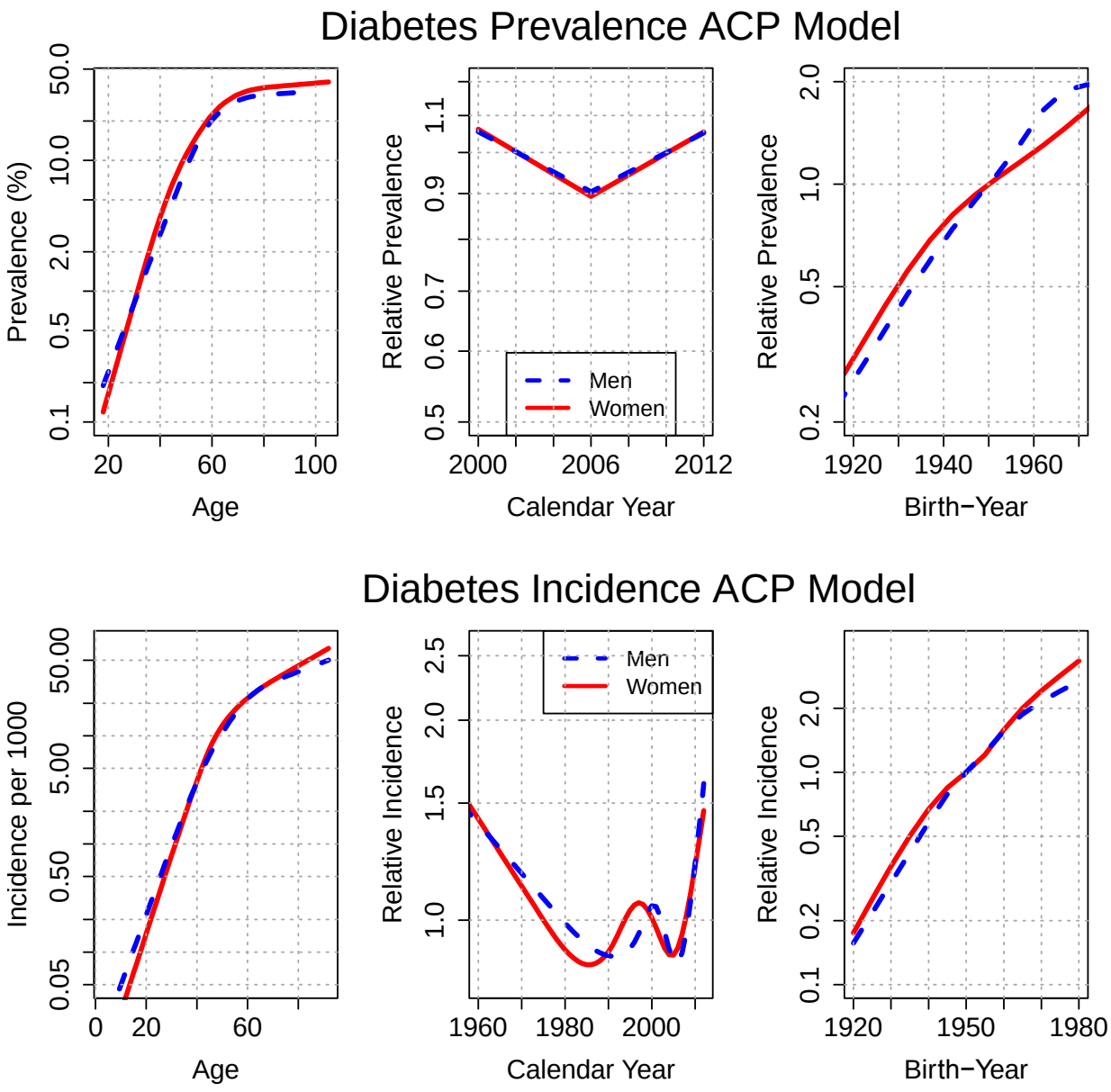

Table S1. Akaike information criteria (AIC) values for the AC, AP and APC prevalence and incidence models relative to the Age only model **

	Prevalence			Incidence		
	AP	AC	APC	AP	AC	APC
Women	-213543	-191738	-235835	-1735520	-1698670	-1774764
Men	-209310	-212512	-240098	-1306533	-1290057	-1357633

* -2 x log(likelihood) +2 x number of parameter estimates

** Relative values that weight the goodness of fit of the model to empirical data. The lower the AIC, the better the model fit

Table S2. Incidence-based prevalence vs Prevalence – Men APC model

	2000		2010	
Birth Cohort	IncBasedPrev*	Prevalence	IncBasedPrev*	Prevalence
1930	13.9	15.0	22.1	16.5
1940	14.6	16.5	27.8	22.2
1950	8.7	9.2	22.0	21.0
1960	4.5	4.1	14.4	13.0
1970	1.4	1.6	6.1	5.0

* Incidence-based prevalence. Calculated from APC incidence model. Unadjusted for mortality

Table S3. Incidence-based prevalence vs Prevalence – Women APC model

	2000		2010	
Birth Cohort	IncBasedPrev*	Prevalence	IncBasedPrev*	Prevalence
1930	17.6	19.9	27.8	21.7
1940	17.6	18.3	31.8	27.0
1950	9.9	11.1	24.1	21.0
1960	4.0	5.2	15.6	13.6
1970	1.2	1.3	6.2	5.8

* Incidence-based prevalence. Calculated from APC incidence model. Unadjusted fo

The tables show the general agreement of incidence-based prevalence (ie, prevalence calculated using the estimated incidence for the specific cohort) and actual prevalence, demonstrating the general consistency between the incidence and prevalence APC models. The incidence-based prevalence is unadjusted for mortality. The table shows the potential two biases of incidence-based prevalence estimated from cross-sectional data. The table shows a large bias at older ages due to differential mortality between people with and without a diabetes diagnosis (higher incidence based prevalence in 2010 for the 1930 and 1940 birth-cohorts). This bias is accounted for in the diabetes projections by assuming higher mortality rates for diabetes. The data also shows the underestimation of prevalence at younger ages when using incidence

estimated from cross-sectional data, in part likely due to a “healthy respondent effect”, since only people alive at the time of the survey are able to respond (exemplified by the lower incidence-based prevalence in 2010 for the 1930 and 1940 birth-cohorts). This bias is nonetheless relatively minor in comparison to the differential mortality effects at older ages.

Figure S3. Diabetes Natural History Model. Individuals are broken in 101 age categories (ages 0 to 100) and 2 disease states (without diabetes and with diagnosed diabetes). Incidence of diabetes (*I(a)*) varies by age and gender. Individuals with diabetes die at a higher age and gender-specific rate ($D_d(a)$) than individuals without diabetes (*D(a)*). Model was parameterized using the estimated Mexico Diabetes incidence and prevalence from ENSANUT. Mortality rates come from CONAPO and future births are based on census projections.

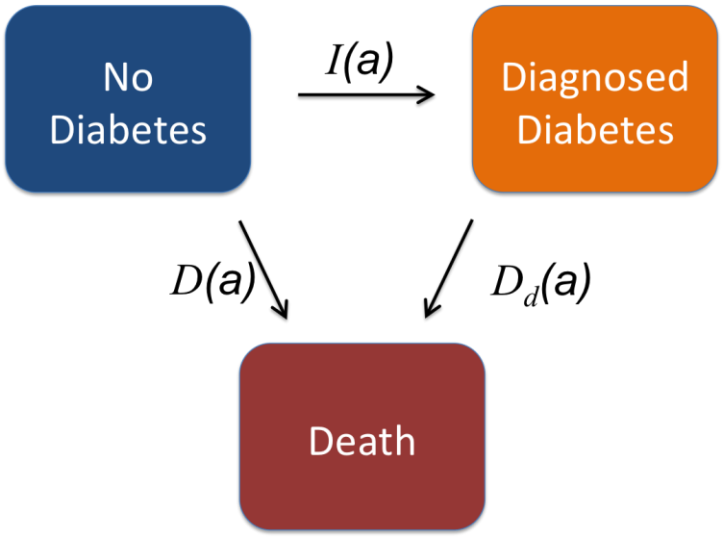

Figure S4. Estimated age-adjusted incidence rates of self-reported diabetes among adults ages 20-90 in Mexico from 1970-2010. Rates were adjusted to the Mexico 2010 population.

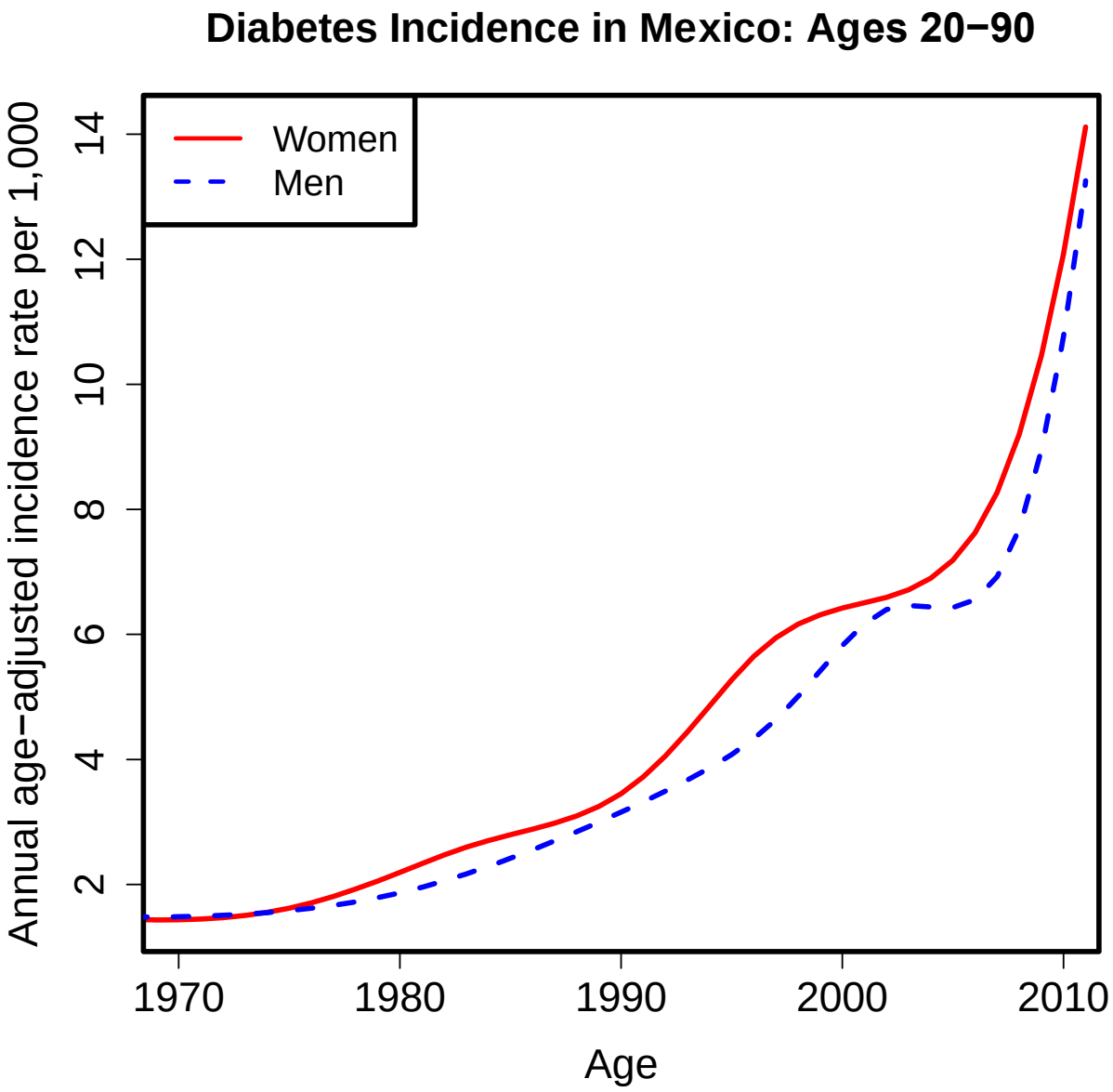

Table S4. Women's estimated age-specific (self-reported) diabetes incidence rates per 1,000 for selected years. Rates in each 5-yr age group were age-adjusted to the Mexico 2010 population.

	1970	1980	1990	2000	2005	2010
20-24	0.14	0.22	0.34	0.64	0.71	1.20
25-29	0.26	0.40	0.62	1.16	1.29	2.18
30-34	0.56	0.86	1.34	2.50	2.80	4.71
35-39	1.05	1.61	2.53	4.71	5.27	8.86
40-44	1.66	2.54	4.00	7.44	8.33	14.00
45-49	2.40	3.68	5.78	10.76	12.05	20.25
50-54	2.99	4.58	7.20	13.39	14.99	25.20
55-59	3.20	4.90	7.70	14.33	16.04	26.98
60-64	3.09	4.72	7.43	13.82	15.47	26.01
65-69	2.81	4.29	6.75	12.56	14.06	23.63
70-74	2.50	3.83	6.02	11.20	12.54	21.08
75-79	2.22	3.40	5.35	9.95	11.14	18.73
80-84	1.97	3.02	4.74	8.82	9.88	16.61
85-89	1.75	2.67	4.20	7.82	8.75	14.71

Table S5. Men's estimated age-specific (self-reported) diabetes incidence rates per 1,000 for selected years. Rates in each 5-yr age group were age-adjusted to the Mexico 2010 population.

	1970	1980	1990	2000	2005	2010
20-24	0.22	0.28	0.47	0.87	0.96	1.60
25-29	0.36	0.45	0.76	1.41	1.56	2.61
30-34	0.70	0.88	1.48	2.73	3.02	5.06
35-39	1.22	1.54	2.60	4.80	5.30	8.87
40-44	1.76	2.21	3.74	6.89	7.61	12.73
45-49	2.31	2.91	4.92	9.08	10.02	16.78
50-54	2.86	3.60	6.08	11.21	12.38	20.73
55-59	3.22	4.05	6.85	12.63	13.94	23.34
60-64	3.20	4.02	6.80	12.53	13.84	23.17
65-69	2.85	3.59	6.07	11.18	12.35	20.68
70-74	2.42	3.04	5.14	9.48	10.47	17.52
75-79	2.01	2.52	4.26	7.86	8.68	14.53
80-84	1.64	2.06	3.49	6.43	7.10	11.88
85-89	1.33	1.67	2.82	5.21	5.75	9.62

Figure S5. Projected Diabetes Prevalence and Cases 2010-2050, when assuming a mortality relative risk of 1.5 between people with and without a diagnosis of diabetes. 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).

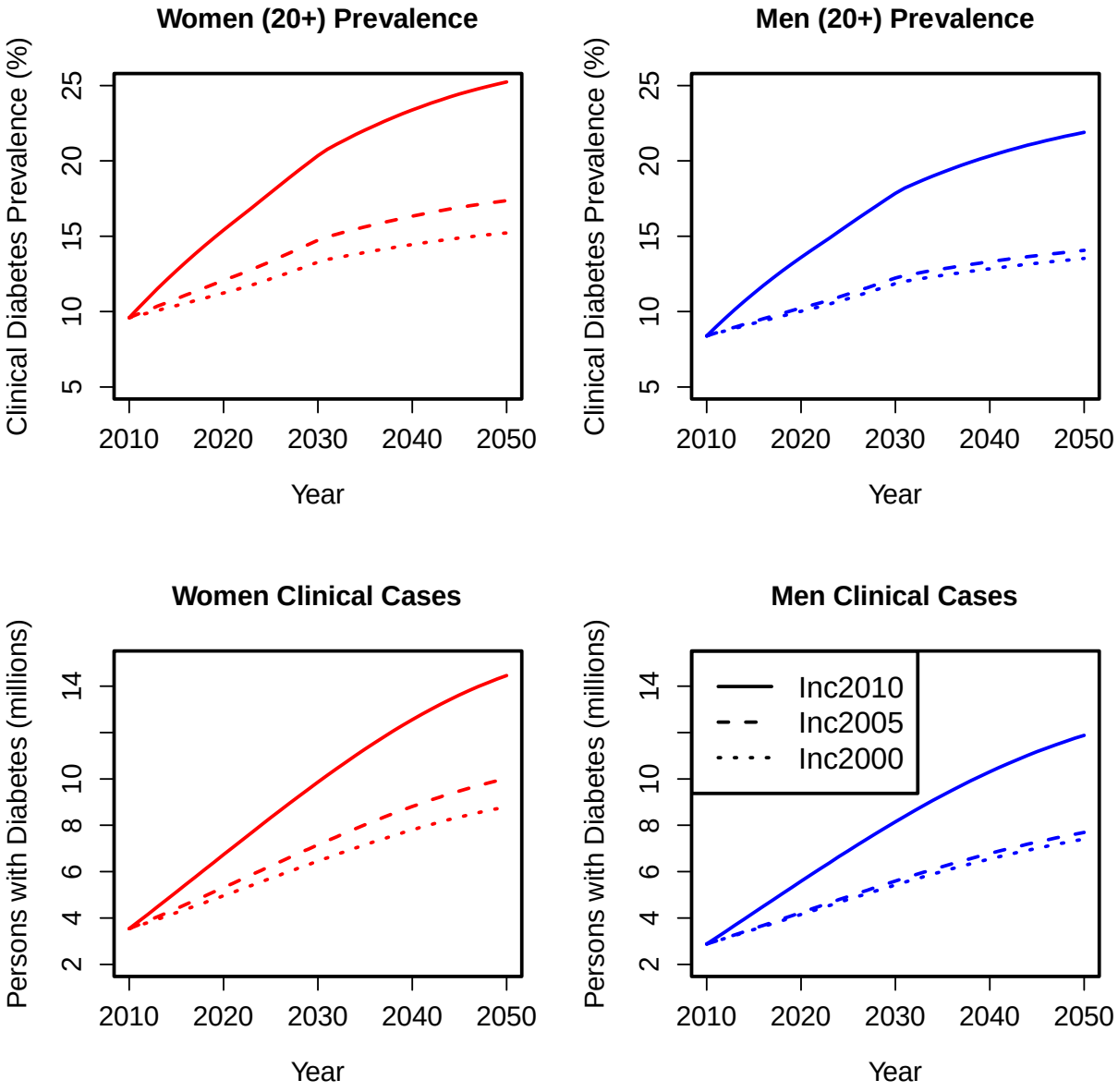

Figure S6. Projected Diabetes Prevalence and Cases 2010-2050, when assuming a mortality relative risk of 2.5 between people with and without a diagnosis of diabetes. Top: Projected clinical (self-reported) diabetes prevalence for women ages 20 or older (left) and men ages 20 or older (right) for three 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).