Multimedia Appendix: Pairwise contrasts and sensitivity analyses

Pairwise Contrasts

Figure S1. Pairwise contrasts for sex differences in HbA1c results in each age categories
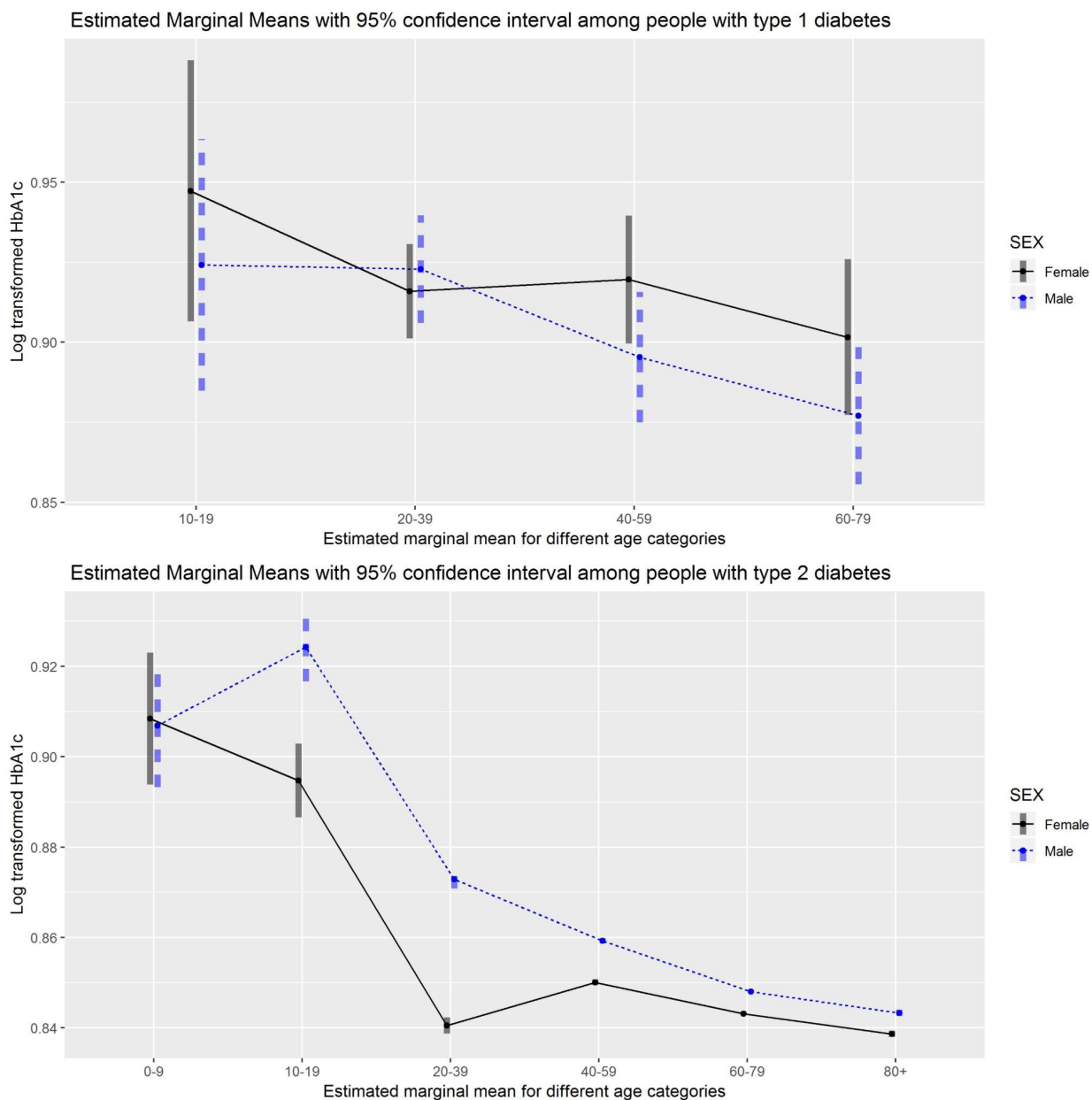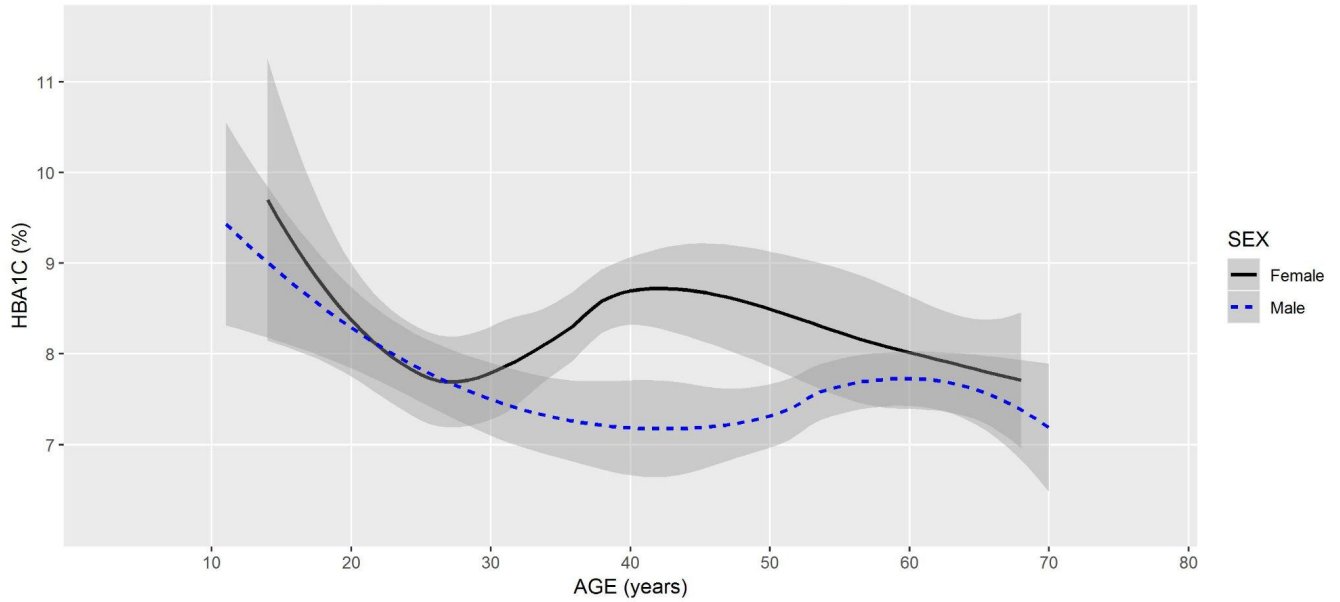

Estimated Marginal Means with 95% confidence interval among people with type 1 diabetes

Estimated Marginal Means with 95% confidence interval among people with type 2 diabetes

Table S1. Pairwise contrasts for sex differences in HbA1c results in people with type 1 and 2 diabetes in each age category

Age Category	Type 1 diabetes (total n = 1949 HbA1c results from 296 people)			Type 2 diabetes (total n = 945,262 HbA1c results from 90,417 people)		
	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
10 - 19	0.02314	0.0291	0.4260	-0.0295	0.00568	<.0001
20 - 39	-0.00689	0.0114	0.5450	-0.0324	0.00137	<.0001
40 - 59	0.02426	0.0146	0.097	-0.0092	0.00043	<.0001
60 - 79	0.02456	0.0165	0.1380	-0.0049	0.00027	<.0001
80+	-	-	-	-0.0046	0.0005	<.0001

Sensitivity Analysis: Changes in Practice and Guidelines

Figure S2. Mean HbA1c of male and female people across all ages of people with type 1 and type 2 diabetes in Canada: 2010-2012

2010-2012 Smoothed (loess) curve and 95% confidence interval of
mean HbA1c results among people with type 1 diabetes (n=257 results)

2010-2012 Smoothed (gam) curve and 95% confidence interval of
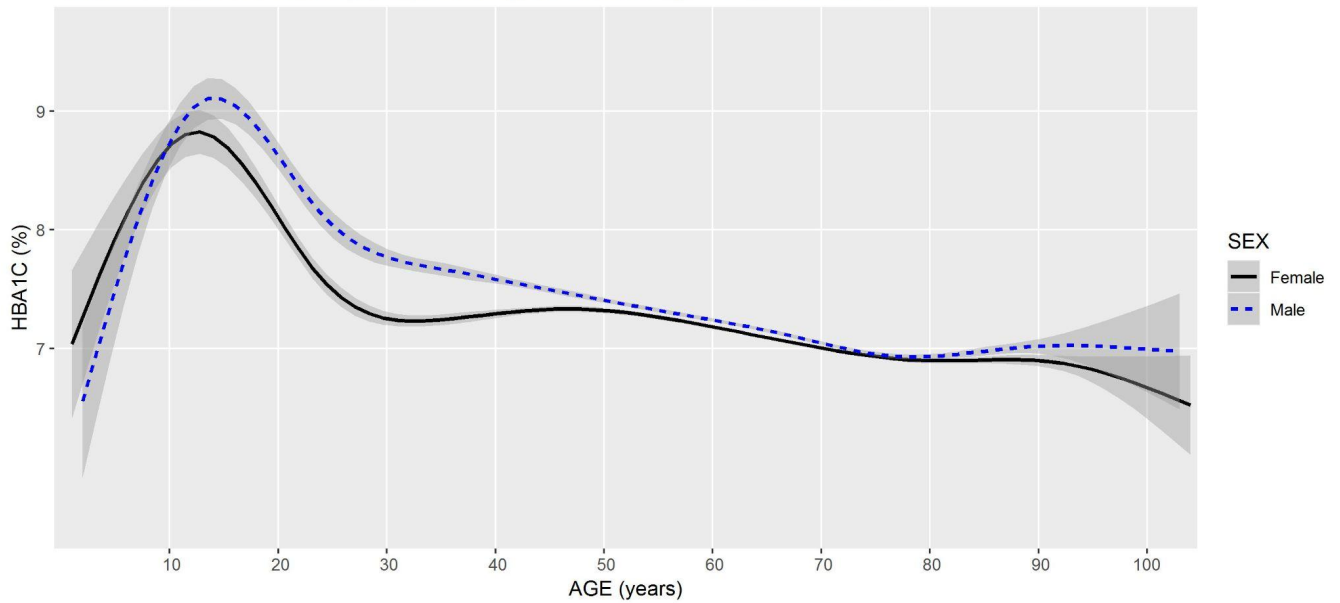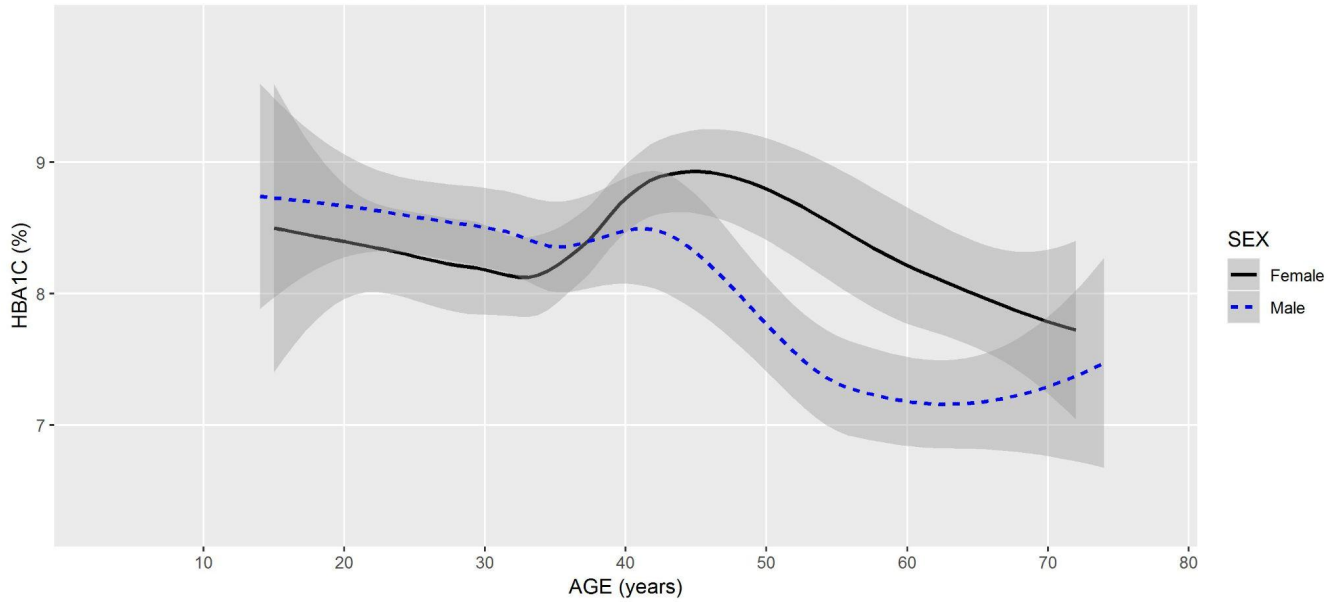mean HbA1c results among people with type 2 diabetes (n=188,837 results)

Figure S3. Mean HbA1c of male and female people across all ages of people with type 1 and type 2 diabetes in Canada: 2013-2016

2013-2016 Smoothed (loess) curve and 95% confidence interval of
mean HbA1c results among people with type 1 diabetes (n=678 results)

2013-2016 Smoothed (gam) curve and 95% confidence interval of
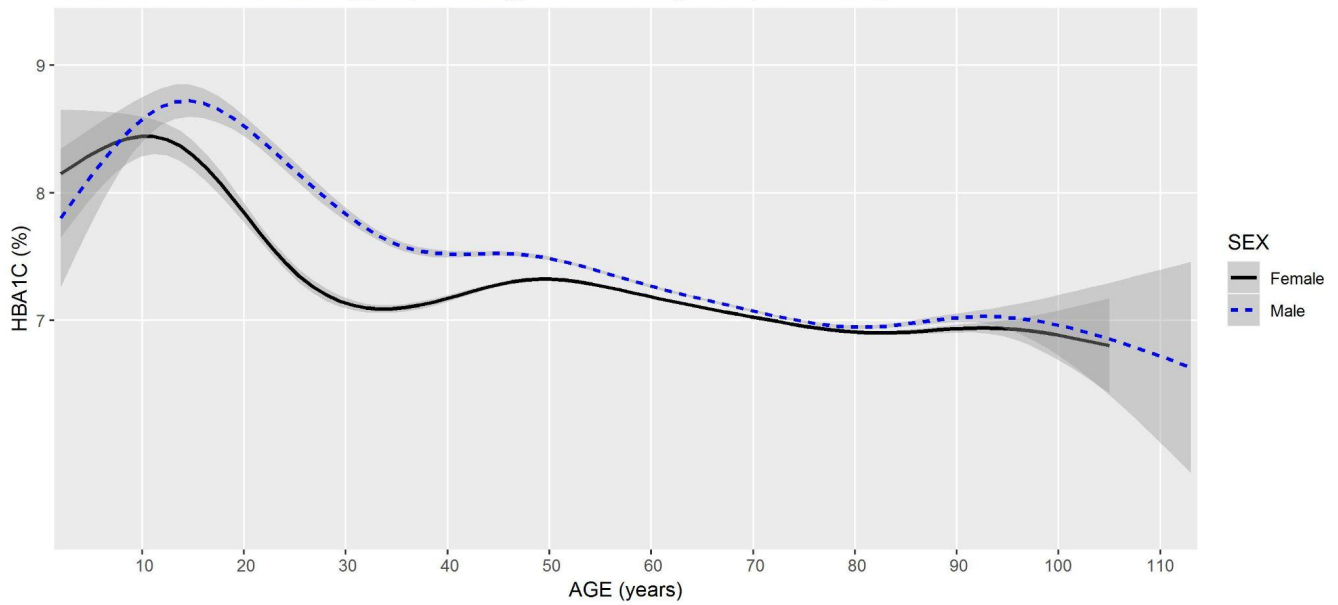mean HbA1c results among people with type 2 diabetes (n=420,623 results)

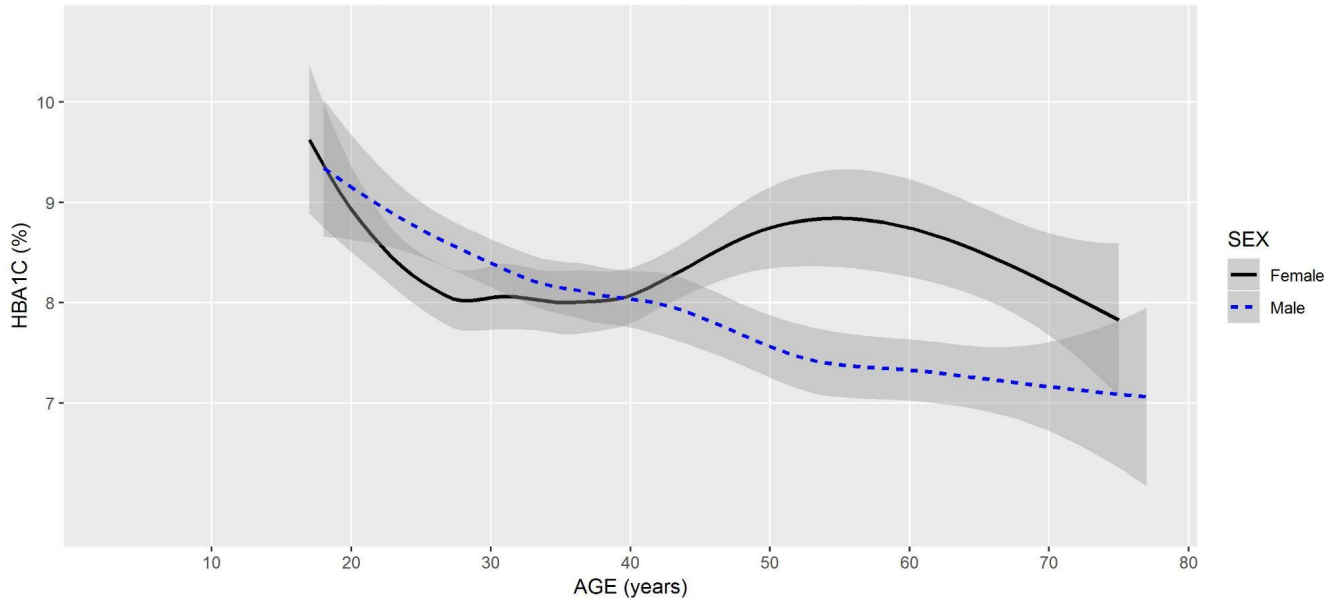# Figure S4. Mean HbA1c of male and female people across all ages of people with type 1 and type 2 diabetes in Canada: 2017-2019

2017-2019 Smoothed (loess) curve and 95% confidence interval of
mean HbA1c results among people with type 1 diabetes (n=1014 results)

2017-2019 Smoothed (gam) curve and 95% confidence interval of
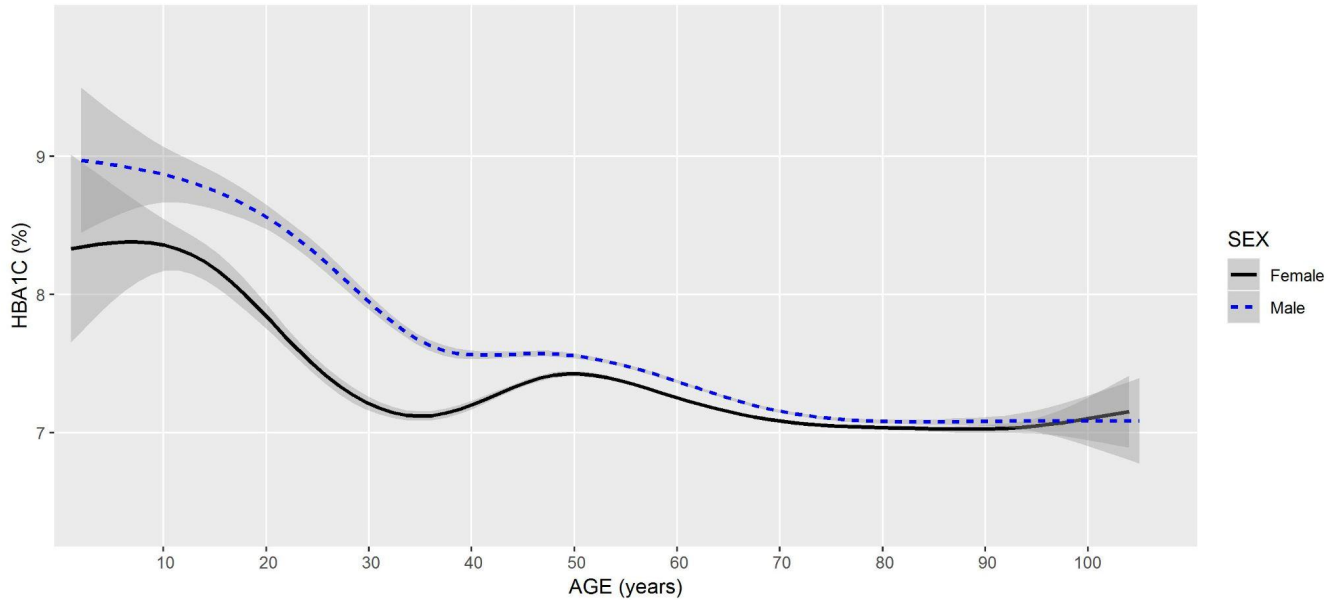mean HbA1c results among people with type 2 diabetes (n=335991 results)

Table S2. Relationships between age, sex, socioeconomic status and HbA1c among people with type 1 and type 2 diabetes in Canada: 2010-2012

	Type 1 diabetes (total n = 257 HbA1c results from 77 people)		Type 2 diabetes (total n = 188,837 HbA1c results from 47,090 people)	
	F statistic	P value	F statistic	P value
Age	1.10	0.3475	257.452	<.0001
Sex	7.25	0.0071	37.377	<.0001
Socioeconomic Status	0.93	0.4435	40.189	<.0001
Age:Sex interaction	0.61	0.6043	22.887	<.0001

Table S3. Pairwise contrasts for sex differences in HbA1c results in people with type 1 and 2 diabetes in each age categories: 2010-2012

Age Category	Type 1 diabetes (total n = 257 HbA1c results from 77 people)			Type 2 diabetes (total n = 188,837 HbA1c results from 47,090 people)		
	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
10 - 19	0.0516	0.0359	0.1509	-0.02329	0.010546	0.0272
20 - 39	0.0233	0.0242	0.3364	-0.02999	0.002920	<.0001
40 - 59	0.0627	0.0261	0.0163	-0.00670	0.000867	<.0001
60 - 79	0.040	0.0217	0.0646	-0.00310	0.000548	<.0001
80+	-	-	-	-0.00452	0.001048	<.0001

Table S4. Relationships between age, sex, socioeconomic status and HbA1c among people with type 1 and type 2 diabetes in Canada: 2013-2016

	Type 1 diabetes (total n = 678 HbA1c results from 163 people)		Type 2 diabetes (total n = 420,623 HbA1c results from 73,296 people)	
	F statistic	P value	F statistic	P value
Age	2.542	0.0544	461.355	<.0001
Sex	0.433	0.5106	65.706	<.0001
Socioeconomic Status	0.705	0.5882	134.285	<.0001
Age:Sex	4.159	0.0059	56.584	<.0001

interaction						

Table S5. Pairwise contrasts for sex differences in HbA1c results in people with type 1 and 2 diabetes in each age categories: 2013-2016

	Type 1 diabetes (total n = 678 HbA1c results from 163 people)			Type 2 diabetes (total n = 420,623 HbA1c results from 73,296 people)		
Age Category	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
10 - 19	-0.02255	0.0336	0.5023	-0.02249	0.008527	0.0084
20 - 39	-0.00885	0.0153	0.5627	-0.03181	0.001962	<.0001
40 - 59	0.06349	0.0194	0.0011	-0.01017	0.000605	<.0001
60 - 79	0.00311	0.0225	0.8899	-0.00405	0.000374	<.0001
80+	-	-	-	-0.00322	0.000697	<.0001

Table S6. Relationships between age, sex, socioeconomic status and HbA1c among people with type 1 and type 2 diabetes in Canada: 2017-2019

	Type 1 diabetes (total n = 1014 HbA1c results from 274 people)		Type 2 diabetes (total n = 335,991 HbA1c results from 73,854 people)	
	F statistic	P value	F statistic	P value
Age	4.659	0.0029	535.204	<.0001
Sex	2.763	0.0965	56.442	<.0001
Socioeconomic Status	0.807	0.5203	84.852	<.0001
Age:Sex interaction	2.119	0.0955	46.747	<.0001

Table S7. Pairwise contrast for sex differences in HbA1c results in people with type 1 and 2 diabetes in each age categories: 2017-2019

	Type 1 diabetes (total n = 1014 HbA1c results from 274 people)			Type 2 diabetes (total n = 335,991 HbA1c results from 73,854 people)		
Age Category	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
10 - 19	0.00657	0.0601	0.2748	-0.5686	0.19747	0.004
20 - 39	-0.0115	0.0136	0.3967	-0.6180	0.04146	<.0001

40 - 59	0.0280	0.0159	0.0784	-0.1693	0.01275	<.0001
60 - 79	0.0295	0.0167	0.0767	-0.0919	0.00707	<.0001
80+	-	-	-	-0.0797	0.01294	<.0001

Sensitivity Analysis: Analyses Without Earliest HbA1c Results

Table S8. Relationships between age, sex, socioeconomic status and HbA1c among people with type 1 and type 2 diabetes in Canada with all first HbA1c results in the database removed

	Type 1 diabetes (total n = 1653 HbA1c results from 241 people)		Type 2 diabetes (total n = 854,845 HbA1c results from 83,107people)	
	F statistic	P value	F statistic	P value
Age	2.65	0.04	19.80	<.0001
Sex	1.81	0.17	54.45	<.0001
Socioeconomic Status	1.02	0.39	54.31	<.0001
Age:Sex interaction	0.68	0.55	12.20	<.0001

Table S9. Pairwise contrasts for sex differences in HbA1c results in people with type 1 and 2 diabetes in each age category with all first HbA1c results in the database removed

Age Category	Type 1 diabetes (total n = 1653 HbA1c results from 241 people)			Type 2 diabetes (total n = 854,845 HbA1c results from 83,107 people)		
	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
10 - 19	0.00592	0.0365	0.871	-0.02367	0.009231	<.0001
20 - 39	0.00534	0.0123	0.6651	-0.024	0.002253	<.0001
40 - 59	0.02746	0.0138	0.0466	-0.00897	0.000762	<.0001
60 - 79	0.02736	0.0162	0.0912	-0.00794	0.000544	<.0001
80+	-	-	-	-0.00816	0.000896	<.0001