

**Supplemental Table 1.** Clinical and health care characteristics at the SEARCH follow-up visits among the longitudinal subset only (n=649 Type 1, n=84 Type 2).

	Type 1			Type 2		
	n	count or mean	(% or SD)	n	count or mean	(% or SD)
<b>First follow-up</b>	<b>649</b>			<b>84</b>		
Diabetes provider is endocrinologist	649	494	(76%)	84	35	(42%)
Cost of care is not a problem	649	325	(50%)	84	42	(50%)
Type of insurance	649			84		
Private		471	(73%)		34	(40%)
Medicare/Medicaid		129	(20%)		26	(31%)
Other		34	(5%)		4	(5%)
None		15	(2%)		20	(24%)
Continuous insurance for past year	649	609	(94%)	84	57	(68%)
Has a personal doctor	649	523	(81%)	84	42	(50%)
Received diabetes education in past year	649	457	(70%)	84	48	(57%)
Type 1 diabetes treatment	649					
Insulin pump		372	(57%)			
Other insulin		277	(43%)			
Type 2 diabetes treatment				84		
Insulin (any administration)					44	(52%)
Non-insulin medications only					24	(29%)
No medications					16	(19%)
Glucose monitoring	649			84		
<4 times/day (including none)		204	(31%)		62	(74%)
≥4 times/day (including continuous monitoring)		445	(69%)		22	(26%)
No severe hypoglycemic episodes in past 6 months	649	597	(92%)	84	83	(99%)
Reported HbA1c tests in past year	649			84		
0		14	(2%)		15	(18%)
1		88	(14%)		19	(23%)
2		153	(24%)		27	(32%)
3 or more		394	(61%)		23	(27%)
HbA1c (%)	637	9.1	(1.9)	83	8.8	(2.8)
HbA1c (mmol/mol)	637	75.9	(20.4)	83	73.1	(30.7)
Optimal HbA1c (<7% [53 mmol/mol])	637	64	(10%)	83	31	(37%)
Warrants quarterly HbA1c testing*	637	573	(90%)	83	56	(67%)
Any microvascular complication	648	93	(14%)	84	33	(39%)
Diabetic kidney disease	573	37	(6%)	71	12	(17%)
Peripheral neuropathy	640	39	(6%)	83	20	(24%)
Diabetic retinopathy	634	25	(4%)	84	10	(12%)
<b>Second follow-up (longitudinal sub-sample)</b>	<b>649</b>			<b>84</b>		
Diabetes provider is endocrinologist at both visits	649	425	(65%)	84	22	(26%)
Cost of care is not a problem at both visits	649	188	(29%)	84	25	(30%)
Type of insurance the same at both visits	649	477	(73%)	84	51	(61%)
Continuous insurance in past year at both visits	649	576	(89%)	84	54	(64%)
Has a personal doctor at both visits†	649	433	(67%)	84	27	(32%)

Received diabetes education in past year at both visits	649	336 (52%)	84	30 (36%)
Diabetes treatment the same at both visits <sup>‡</sup>	649	533 (82%)	84	56 (67%)
Glucose monitoring ≥4 times/day (including continuous monitoring) at both visits	649	348 (54%)	84	10 (12%)
No severe hypoglycemic events in past 6-12 months at both visits <sup>§</sup>	649	545 (84%)	84	81 (96%)
Reported ≥3 HbA1c tests/year at both visits	649		84	
Testing ≥3 times/year at both visits		266 (41%)		14 (17%)
Testing ≥3 times/year at first follow-up only		128 (20%)		9 (11%)
Testing ≥3 times/year at second follow-up only		105 (16%)		16 (19%)
Testing ≥3 times/year at neither visit		150 (23%)		45 (54%)
HbA1c (%)	638	8.9 (1.9)	83	9.4 (2.8)
HbA1c (mmol/mol)	638	73.5 (20.9)	83	79.6 (30.3)
Optimal HbA1c (<7% [53 mmol/mol]) at both visits	626	37 (6%)	82	15 (18%)
Warrants quarterly HbA1c testing at both visits*	626	514 (82%)	82	48 (59%)
Any microvascular complication	649	166 (26%)	84	42 (50%)
Diabetic kidney disease	579	63 (11%)	71	20 (28%)
Peripheral neuropathy	644	53 (8%)	83	17 (20%)
Diabetic retinopathy	626	95 (15%)	80	25 (31%)

Data are n (%) unless otherwise noted

\*Per the American Diabetes Association (1,2), quarterly HbA1c testing is warranted when HbA1c >7% (53 mmol/mol) in any individual with type 1 or type 2 diabetes or when age <18 years for those with type 2 diabetes

<sup>‡</sup>Second follow-up asked specifically about a personal *diabetes* doctor

<sup>‡</sup>Type 1: pump (yes/no) consistent across visits; type 2: treatment categories consistent across visits

<sup>§</sup>First follow-up asked about hypoglycemic episodes in past 6 months; second follow-up asked about past 12 months.

## References

1. American Diabetes Association. 6. Glycemic Targets: Standards of Medical Care in Diabetes-2021. *Diabetes Care* 2021;44:S73-S84
2. American Diabetes Association. 13. Children and Adolescents: Standards of Medical Care in Diabetes-2021. *Diabetes Care* 2021;44:S180-S199

**Supplemental Table 2.** Mean difference in HbA1c and odds of any microvascular complication according to HbA1c testing cross-sectionally at the first follow-up visit

	HbA1c % (continuous)		Microvascular complication (odds of $\geq 1$ complications)	
	Beta (95% CI)	p-value	OR (95% CI)	p-value
<b>A1c testing classified as <math>\geq 3</math> tests/year versus <math>&lt; 3</math> tests/year (reference)</b>				
<b>Type 1</b>				
N (events)	N=1855		N=1883 (273 events)	
$\geq 3$ HbA1c tests/year				
Model 1	-0.33 (-0.50, -0.16)	0.0002	0.53 (0.41, 0.69)	<0.0001
Model 2	-0.32 (-0.50, -0.16)	0.0002	0.82 (0.62, 1.09)	0.17
Model 3	-0.16 (-0.33, 0.01)	0.07	0.97 (0.72, 1.31)	0.85
<b>Type 2</b>				
N (events)	N=227		N=230 (75 events)	
$\geq 3$ HbA1c tests/year				
Model 1	0.60 (-0.24, 1.43)	0.16	0.69 (0.37, 1.32)	0.27
Model 2	0.56 (-0.32, 1.45)	0.21	0.75 (0.38, 1.47)	0.40
Model 3	-0.12 (-0.97, 0.72)	0.77	0.69 (0.32, 1.47)	0.33
<b>A1c testing classified as 0, 1, 2, or <math>\geq 3</math> tests/year</b>				
<b>Type 1</b>				
N (events)	N=1855		N=1883 (273 events)	
HbA1c tests (per 1-test increase)				
Model 1	-0.28 (-0.38, -0.18)	<0.0001	0.69 (0.60, 0.80)	<0.0001
Model 2	-0.30 (-0.40, -0.19)	<0.0001	0.89 (0.76, 1.04)	0.13
Model 3	-0.18 (-0.28, -0.07)	0.0009	1.01 (0.85, 1.19)	0.95
<b>Type 2</b>				
N (events)	N=227		N=230 (75 events)	
HbA1c tests (per 1-test increase)				
Model 1	0.26 (-0.07, 0.59)	0.13	0.86 (0.67, 1.10)	0.24
Model 2	0.25 (-0.11, 0.60)	0.17	0.88 (0.68, 1.14)	0.34
Model 3	-0.13 (-0.50, 0.24)	0.49	0.81 (0.58, 1.12)	0.20

Model 1 is unadjusted.

Model 2 adjusts for age at diagnosis, gender, race/ethnicity, duration of diabetes, and clinical site.

Model 3 adjusts for Model 2 variables, receipt of diabetes education, frequency of glucose self-monitoring, and additional covariates informed by stepwise variable selection via logistic regression model with  $\geq 3$  tests/year at the first follow-up visit as the outcome (type 1: household income at first visit, diabetes treatment regimen, type of diabetes provider, have a personal doctor, problems with cost, continuous insurance for the past 12 months; type 2: diabetes treatment regimen, type of diabetes provider).

**Supplemental Table 3.** Mean difference in HbA1c and odds of any microvascular complication at the second SEARCH follow-up visit according to HbA1c testing longitudinally at the first and second follow-up visits

	HbA1c % (continuous)		Microvascular complication (odds of $\geq 1$ complications)	
	Beta (95% CI)	p-value	OR (95% CI)	p-value
<b>A1c testing classified as <math>\geq 3</math> tests/year versus <math>&lt; 3</math> tests/year (reference)</b>				
<b>Type 1</b>				
N (events)	N=638		N=649 (166 events)	
$\geq 3$ HbA1c tests/year				
Model 1*	-0.17 (-0.48, 0.13)	0.26	0.51 (0.35, 0.75)	0.0006
Model 2†	-0.36 (-0.65, -0.06)	0.02	0.64 (0.43, 0.97)	0.03
Model 3‡	-0.17 (-0.46, 0.13)	0.27	0.70 (0.46, 1.07)	0.10
<b>Type 2</b>				
N (events)	n=83		n=84 (42 events)	
$\geq 3$ HbA1c tests/year				
Model 1	-0.20 (-1.83, 1.43)	0.81	1.41 (0.44, 4.49)	0.56
Model 2*	-0.27 (-2.00, 1.47)	0.76	--	--
Model 3*	-0.17 (-2.06, 1.753)	0.86	--	--
<b>A1c testing classified as 0, 1, 2, or <math>\geq 3</math> tests/year</b>				
<b>Type 1</b>				
N (events)	N=638		N=649 (166 events)	
HbA1c tests (per 1-test increase)				
Model 1	-0.27 (-0.51, -0.04)	0.02	0.56 (0.43, 0.74)	<0.0001
Model 2	-0.44 (-0.67, -0.22)	0.0001	0.63 (0.47, 0.85)	0.002
Model 3	-0.29 (-0.52, -0.06)	0.01	0.67 (0.49, 0.92)	0.01
<b>Type 2</b>				
N (events)	n=83		n=84 (42 events)	
HbA1c tests (per 1-test increase)				
Model 1	-0.34 (-1.04, 0.36)	0.33	0.92 (0.56, 1.52)	0.75
Model 2*	-0.46 (-1.20, 0.28)	0.22	--	--
Model 3*	-0.45 (-1.29, 0.39)	0.29	--	--

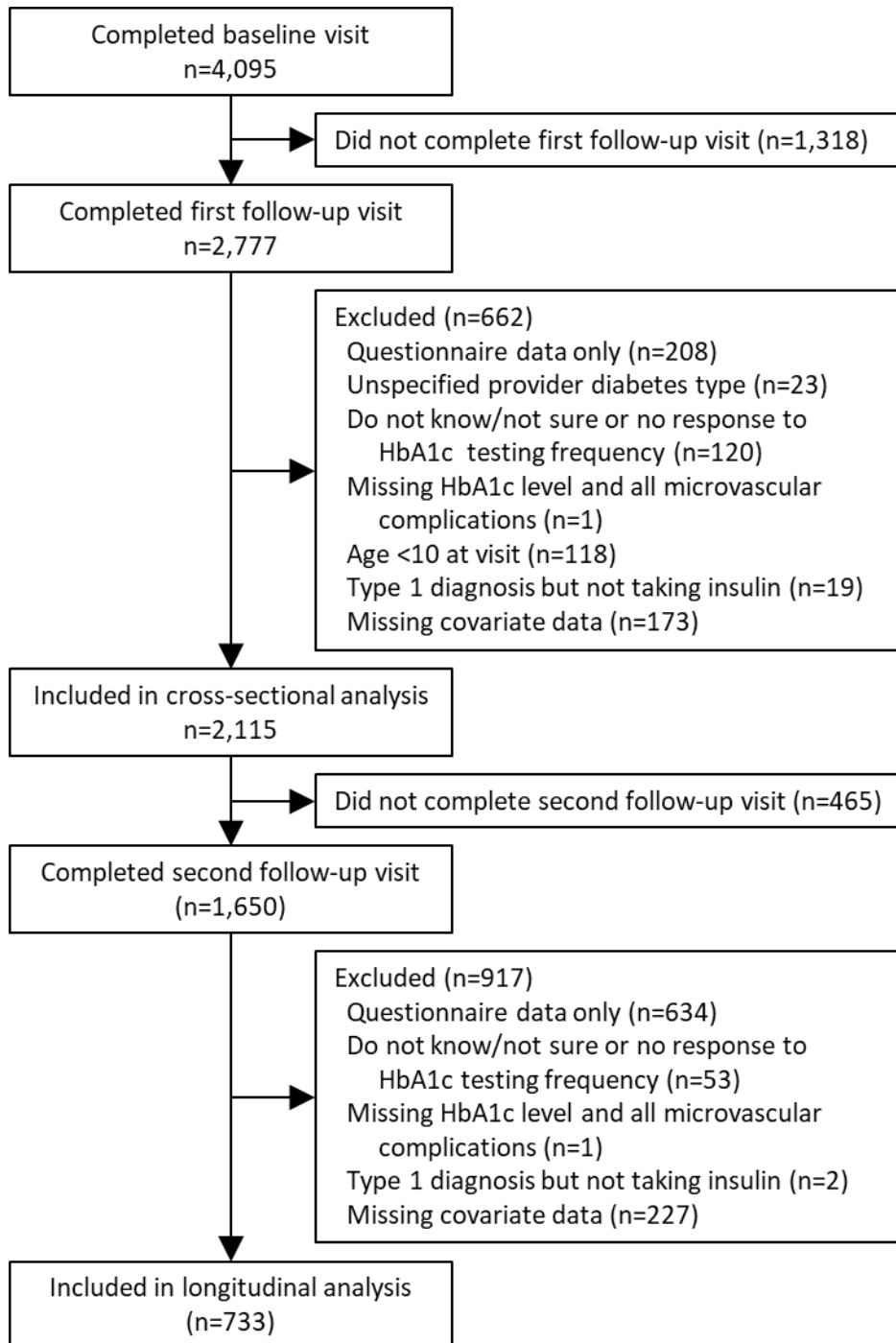
Model 1 is unadjusted.

Model 2 adjusts for age at diagnosis, gender, race/ethnicity, duration of diabetes, and clinical site.

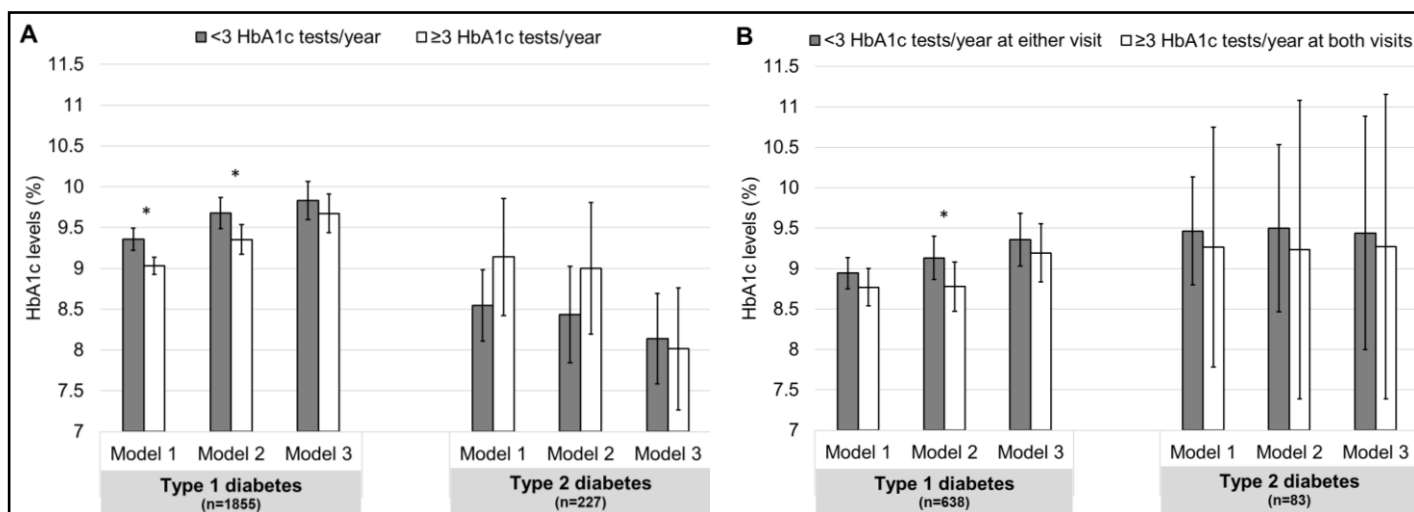
Model 3 adjusts for Model 2 variables, receipt of diabetes education, frequency of glucose self-monitoring, and additional covariates informed by stepwise variable selection via logistic regression model with  $\geq 3$  tests/year at both follow-up visits as the outcome (type 1: household income at first visit, have a personal doctor, continuous insurance for the past 12 months; type 2: type of diabetes provider).

\*Models 2 and 3 did not converge for type 2 diabetes.

**Supplemental Figure 1.** Flow diagram with analytic sample sizes.



**Supplemental Figure 2.** Mean HbA1c (95% CI) for those reporting <3 tests/year (gray bars) or ≥3 tests/year (white bars) cross-sectionally at the first follow-up visit (A) or longitudinally at the first and second follow-up visits (B).



\*p<0.05 for comparison between HbA1c testing frequency groups.

Model 1 is unadjusted.

Model 2 adjusts for age at diagnosis, gender, race/ethnicity, duration of diabetes, and clinical site.

Model 3 adjusts for Model 2 variables, receipt of diabetes education, frequency of glucose self-monitoring, and additional covariates informed by stepwise variable selection via logistic regression model with ≥3 tests/year as the outcome (type 1: household income at first visit, diabetes treatment regimen, type of diabetes provider, have a personal doctor, problems with cost, continuous insurance for the past 12 months; type 2: diabetes treatment regimen, type of diabetes provider).