

The prevalence and long-term variation of hospital readmission for patients with diabetes in Tianjin, China: a cross-sectional study

Xiaoqian Liu

Table S1 The predicted accuracy of baseline model

Years	Baseline Model	p
30-day		
2008	0.745(0.720-0.765)	<0.001
2009	0.777(0.721-0.792)	<0.001
2010	0.791(0.776-0.810)	0.021
2011	0.801(0.782-0.824)	<0.001
2012	0.824(0.806-0.846)	<0.001
2013	0.840(0.828-0.869)	<0.001
60-day		
2008	0.650(0.613-0.660)	<0.001
2009	0.663(0.610-0.681)	0.031
2010	0.652(0.622-0.674)	0.045
2011	0.705(0.688-0.725)	<0.001
2012	0.716(0.700-0.745)	0.041
2013	0.725(0.711-0.738)	0.049
90-day		
2008	0.621(0.609-0.633)	0.021
2009	0.614(0.601-0.625)	0.022
2010	0.625(0.621-0.640)	0.029
2011	0.662(0.650-0.677)	0.049
2012	0.734(0.720-0.750)	<0.001
2013	0.764(0.753-0.780)	<0.001

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Table S2 The readmission ratios at different time intervals (N(%))

Years	30-day	60-day	90-day	p
2008	351(4.2)	336(4.1)	756(9.2)	<0.001
2009	462(4.2)	380(3.5)	1006(9.2)	<0.001
2010	399 (3.4)	377(3.2)	1079(9.2)	<0.001
2011	383(2.9)	377(2.8)	1207(9.1)	<0.001
2012	377(2.7)	348(2.5)	1151(8.3)	<0.001
2013	366(2.4)	326(2.2)	1263(8.4)	<0.001

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Table S3 Characteristics of patients and hospitals of discharge for 30-day readmission

Variables	Coefficient	SE*	p
2008			
Secondary hospitals	-0.093446	0.212984	0.6608
Tertiary hospitals	-0.129518	0.205322	0.5282
Male	-0.290104	0.117574	0.0136
Age	0.013065	0.006440	0.0425
Previously diagnosed diabetes	-0.100623	0.167697	0.5485
Suffered with diabetes complications	0.317020	0.125747	0.0117
Have family history of diabetes	-0.383504	0.368326	0.2978
Screening one year prior to diagnosis	-0.152521	0.394164	0.6988
Type II diabetes	-1.099421	0.214578	<0.001
Length of stay	0.030938	0.004595	<0.001
Suffered with hypertension	0.148921	0.169861	0.3806
Reimbursement ratio: 85%	-0.478031	0.200211	0.0170
Suffered with CHF	0.319107	0.308859	0.3015
2009			
Secondary hospitals	0.312419	0.194156	0.107593
Tertiary hospitals	0.020329	0.193495	0.916327
Male	-0.220907	0.103184	0.032282
Age	0.021049	0.005608	0.000175
Previously diagnosed diabetes	0.230096	0.129671	0.075988
Suffered with diabetes complications	0.262051	0.113913	0.021423
Have family history of diabetes	-0.051079	0.281579	0.856052
Screening one year prior to diagnosis	0.208136	0.337106	0.536958
Type II diabetes	-1.265158	0.209703	<0.001
Length of stay	0.030510	0.004747	<0.001
Suffered with hypertension	0.274697	0.137944	0.046440
Reimbursement ratio: 85%	-0.168706	0.168460	0.316602
Suffered with CHF	0.034517	0.305972	0.910179
2010			
Secondary hospitals	0.503541	0.203540	0.013364
Tertiary hospitals	0.382961	0.201954	0.057923
Male	-0.006908	0.110168	0.950003
Age	0.019961	0.006121	0.001109
Previously diagnosed diabetes	0.115992	0.134161	0.387273
Suffered with diabetes complications	0.442762	0.116913	<0.001
Have family history of diabetes	0.016102	0.285786	0.955069
Screening one year prior to diagnosis	-0.905939	0.588667	0.123812

	Variables	Coefficient	SE*	p
2011	Type II diabetes	-1.457054	0.225064	<0.001
	Length of stay	0.037922	0.005721	<0.001
	Suffered with hypertension	0.273095	0.138599	0.048792
	Reimbursement ratio: 85%	-0.354435	0.184261	0.054410
	Suffered with CHF	0.073628	0.278752	0.791677
	Secondary hospitals	0.398320	0.189377	0.03544
	Tertiary hospitals	0.277736	0.186682	0.13682
	Male	0.074112	0.112276	0.50919
	Age	0.024464	0.006227	<0.001
	Previously diagnosed diabetes	0.128643	0.136329	0.34536
	Suffered with diabetes complications	0.632205	0.115639	<0.001
	Have family history of diabetes	-0.591591	0.394458	0.13368
	Screening one year prior to diagnosis	-0.125327	0.427643	0.76947
	Type II diabetes	-0.789914	0.271689	0.00364
	Length of stay	0.047622	0.006483	<0.001
2012	Suffered with hypertension	0.130509	0.112059	0.24416
	Reimbursement ratio: 85%	-0.278470	0.186850	0.13614
	Suffered with CHF	0.438939	0.353814	0.21476
	Secondary hospitals	0.403348	0.208781	0.05337
	Tertiary hospitals	0.497408	0.203859	0.01469
	Male	-0.282437	0.113668	0.01296
	Age	0.017760	0.006299	0.00481
	Previously diagnosed diabetes	-0.031845	0.143411	0.82427
	Suffered with diabetes complications	0.700378	0.115101	<0.001
	Have family history of diabetes	0.065774	0.331935	0.84293
	Screening one year prior to diagnosis	-0.451951	0.458798	0.32459
	Type II diabetes	-0.682934	0.278876	0.01433
	Length of stay	0.047919	0.005900	<0.001
	Suffered with hypertension	0.242245	0.140677	0.08507
	Reimbursement ratio: 85%	-0.357425	0.181781	0.04927
2013	Suffered with CHF	-0.828819	1.015789	0.41454
	Secondary hospitals	0.141419	0.213215	0.5072
	Tertiary hospitals	0.155846	0.207551	0.4527
	Male	-0.128949	0.115244	0.2632
	Age	0.029957	0.006351	<0.001
	Previously diagnosed diabetes	-0.065721	0.144190	0.6485
	Suffered with diabetes complications	0.500157	0.117597	<0.001
	Have family history of diabetes	-0.249598	0.352396	0.4788
	Screening one year prior to diagnosis	-0.507465	0.469603	0.2799
	Type II diabetes	-1.267998	0.248134	<0.001

Variables	Coefficient	SE*	p
Length of stay	0.049112	0.006399	<0.001
Suffered with hypertension	0.292117	0.142999	0.0411
Reimbursement ratio: 85%	-0.108617	0.183931	0.5548
Suffered with CHF	0.194042	0.601983	0.7472

*SE: Standard error

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Table S4 Characteristics of patients and hospitals of discharge for 60-day readmission

Variables	Coefficient	SE*	p
2008			
Secondary hospitals	0.083475	0.197388	0.67237
Tertiary hospitals	-0.595213	0.199823	0.00289
Male	-0.03191	0.118964	0.78852
Age	0.007337	0.006504	0.25924
Previously diagnosed diabetes	0.114015	0.159732	0.47536
Suffered with diabetes complications	-0.002767	0.132152	0.98330
Have family history of diabetes	-0.283236	0.368260	0.44182
Screening one year prior to diagnosis	-0.667854	0.512344	0.19239
Type II diabetes	0.154534	0.349792	0.65864
Length of stay	0.014837	0.006196	0.01664
Suffered with hypertension	-0.024738	0.178430	0.88973
Reimbursement ratio: 85%	-0.384212	0.199367	0.05396
Suffered with CHF	0.746441	0.276291	0.00690
2009			
Secondary hospitals	-0.239652	0.176337	0.17413
Tertiary hospitals	-0.569642	0.176213	0.00123
Male	-0.074018	0.111164	0.50551
Age	0.018066	0.006048	0.00281
Previously diagnosed diabetes	0.065152	0.148826	0.66155
Suffered with diabetes complications	0.176277	0.126432	0.16324
Have family history of diabetes	-0.023252	0.302567	0.93874
Screening one year prior to diagnosis	0.182462	0.373111	0.62482
Type II diabetes	-0.027722	0.392355	0.94367
Length of stay	0.025196	0.005490	<0.001
Suffered with hypertension	0.046064	0.161325	0.77524
Reimbursement ratio: 85%	-0.269021	0.189138	0.15492
Suffered with CHF	0.564368	0.286007	0.04847
2010			
Secondary hospitals	-0.270094	0.156143	0.08367
Tertiary hospitals	-0.712825	0.161201	<0.001
Male	-0.107909	0.113390	0.34127
Age	0.008034	0.006398	0.20925
Previously diagnosed diabetes	-0.119138	0.148147	0.42129
Suffered with diabetes complications	0.292942	0.121827	0.01619
Have family history of diabetes	0.283137	0.276024	0.30500
Screening one year prior to diagnosis	-0.287208	0.513332	0.57582

	Variables	Coefficient	SE*	p
2011	Type II diabetes	0.147284	0.461627	0.74969
	Length of stay	0.019792	0.006946	0.00438
	Suffered with hypertension	0.568212	0.132243	<0.001
	Reimbursement ratio: 85%	-0.163758	0.175926	0.35194
	Suffered with CHF	-0.064724	0.278294	0.81609
	Secondary hospitals	-0.212739	0.158863	0.1805
	Tertiary hospitals	-0.785880	0.164031	<0.001
	Male	-0.054378	0.113726	0.6325
	Age	0.001081	0.006370	0.8653
	Previously diagnosed diabetes	0.069846	0.139355	0.6162
	Suffered with diabetes complications	0.060683	0.126721	0.6320
	Have family history of diabetes	0.367063	0.274917	0.1818
	Screening one year prior to diagnosis	-0.548343	0.587878	0.3509
	Type II diabetes	-0.619184	0.317506	0.0512
	Length of stay	0.016834	0.009003	0.0615
2012	Suffered with hypertension	0.072371	0.113623	0.5242
	Reimbursement ratio: 85%	-0.359659	0.176227	0.0413
	Suffered with CHF	-0.108849	0.460534	0.8132
	Secondary hospitals	0.187631	0.182184	0.303058
	Tertiary hospitals	-0.380348	0.187952	0.043006
	Male	-0.141566	0.119222	0.235064
	Age	0.023282	0.006587	<0.001
	Previously diagnosed diabetes	0.093493	0.143330	0.514212
	Suffered with diabetes complications	0.373522	0.123525	0.002496
	Have family history of diabetes	0.368939	0.304843	0.226179
	Screening one year prior to diagnosis	0.036716	0.423476	0.930909
	Type II diabetes	-0.456006	0.321111	0.155583
	Length of stay	0.028019	0.007682	<0.001
	Suffered with hypertension	0.612780	0.130387	<0.001
	Reimbursement ratio: 85%	0.134830	0.182071	0.458974
2013	Suffered with CHF	-1.060084	1.013634	0.295642
	Secondary hospitals	-0.216477	0.193342	0.26286
	Tertiary hospitals	-0.381089	0.189600	0.04444
	Male	-0.115878	0.120967	0.33810
	Age	0.001520	0.006848	0.82430
	Previously diagnosed diabetes	0.101514	0.144713	0.48300
	Suffered with diabetes complications	0.312456	0.127681	0.01440
	Have family history of diabetes	-0.158894	0.364995	0.66332
	Screening one year prior to diagnosis	0.076602	0.394282	0.84596
	Type II diabetes	-0.691391	0.334339	0.03865

Variables	Coefficient	SE*	p
Length of stay	0.032338	0.008141	<0.001
Suffered with hypertension	0.425337	0.145370	0.00343
Reimbursement ratio: 85%	-0.555495	0.193697	0.00413
Suffered with CHF	0.203121	0.600906	0.73534

*SE: Standard error

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Table S5 Characteristics of patients and hospitals of discharge for 90-day readmission

Variables	Coefficient	SE*	p
2008			
Secondary hospitals	-0.209373	0.135731	0.1229
Tertiary hospitals	-0.538091	0.133720	<0.001
Male	0.029859	0.082313	0.7168
Age	0.003634	0.004506	<0.001
Previously diagnosed diabetes	-0.025032	0.115447	0.8283
Suffered with diabetes complications	0.127208	0.090471	0.1597
Have family history of diabetes	-0.306833	0.250618	0.2208
Screening one year prior to diagnosis	-0.576104	0.329813	0.0807
Type II diabetes	-0.071466	0.227410	0.7533
Length of stay	0.004032	0.004763	0.3973
Suffered with hypertension	0.696892	0.100575	<0.001
Reimbursement ratio: 85%	-0.266847	0.134070	0.0466
Suffered with CHF	-0.508331	0.250170	0.0422
2009			
Secondary hospitals	-0.362852	0.110106	<0.001
Tertiary hospitals	-0.68451	0.109884	<0.001
Male	-0.08335	0.071319	0.242532
Age	0.010853	0.003896	0.005341
Previously diagnosed diabetes	-0.127127	0.101775	0.211626
Suffered with diabetes complications	0.136064	0.081133	0.093533
Have family history of diabetes	-0.107924	0.200282	0.589984
Screening one year prior to diagnosis	-0.586635	0.346869	0.090793
Type II diabetes	-0.172122	0.232731	0.459557
Length of stay	0.015757	0.004305	<0.001
Suffered with hypertension	0.640886	0.087347	<0.001
Reimbursement ratio: 85%	-0.200808	0.116282	0.084184
Suffered with CHF	0.356321	0.173025	0.039459
2010			
Secondary hospitals	-0.079946	0.106760	0.453953
Tertiary hospitals	-0.356107	0.107429	<0.001
Male	-0.077038	0.069292	0.266234
Age	0.007953	0.003911	0.042028
Previously diagnosed diabetes	0.062306	0.085648	0.466938
Suffered with diabetes complications	0.052749	0.078680	0.502589
Have family history of diabetes	-0.170279	0.193845	0.379709
Screening one year prior to diagnosis	0.120523	0.236472	0.610283

	Variables	Coefficient	SE*	p
2011	Type II diabetes	-0.287412	0.236650	0.224557
	Length of stay	0.019179	0.004683	<0.001
	Suffered with hypertension	0.656857	0.080317	<0.001
	Reimbursement ratio: 85%	-0.319777	0.109935	0.003628
	Suffered with CHF	0.032159	0.164171	0.844700
	Secondary hospitals	-0.232592	0.094064	0.013409
	Tertiary hospitals	-0.629191	0.095081	<0.001
	Male	0.031393	0.066228	0.635492
	Age	0.014764	0.003691	<0.001
	Previously diagnosed diabetes	0.007661	0.082558	0.926067
	Suffered with diabetes complications	0.245496	0.071863	<0.001
	Have family history of diabetes	0.079219	0.178604	0.657372
	Screening one year prior to diagnosis	0.167519	0.234585	0.475160
	Type II diabetes	-0.741731	0.178404	<0.001
	Length of stay	0.018408	0.005341	<0.001
2012	Suffered with hypertension	0.051257	0.066243	0.439067
	Reimbursement ratio: 85%	-0.032281	0.101825	0.751226
	Suffered with CHF	-0.108564	0.267047	0.684350
	Secondary hospitals	-0.228197	0.102329	0.025745
	Tertiary hospitals	-0.457302	0.101532	<0.001
	Male	0.007809	0.067618	0.908059
	Age	0.012539	0.003767	<0.001
	Previously diagnosed diabetes	0.142743	0.081096	0.078377
	Suffered with diabetes complications	0.116350	0.074223	0.116981
	Have family history of diabetes	-0.155601	0.209182	0.456966
	Screening one year prior to diagnosis	0.120605	0.208586	0.563128
	Type II diabetes	0.175129	0.257144	0.495837
	Length of stay	0.020327	0.005538	<0.001
	Suffered with hypertension	0.845105	0.071963	<0.001
	Reimbursement ratio: 85%	-0.078348	0.104706	0.454296
2013	Suffered with CHF	0.157768	0.311150	0.612122
	Secondary hospitals	-0.433890	0.094029	<0.001
	Tertiary hospitals	-0.879127	0.094076	<0.001
	Male	-0.161519	0.064730	0.01259
	Age	0.011216	0.003648	0.00211
	Previously diagnosed diabetes	-0.089348	0.081552	0.27326
	Suffered with diabetes complications	0.172583	0.068882	0.01223
	Have family history of diabetes	-0.207744	0.200003	0.29894
	Screening one year prior to diagnosis	0.489085	0.186420	0.00870
	Type II diabetes	-0.450888	0.202286	0.02582

Variables	Coefficient	SE*	p
Length of stay	0.029470	0.005393	<0.001
Suffered with hypertension	0.570314	0.074756	<0.001
Reimbursement ratio: 85%	-0.238530	0.099755	0.01679
Suffered with CHF	-0.231679	0.381505	0.54367

*SE: Standard error