

Evaluation of Social Determinants of Health (SDOH) on Type 2 Diabetes (T2DM) Treatment Selection and Disease Severity



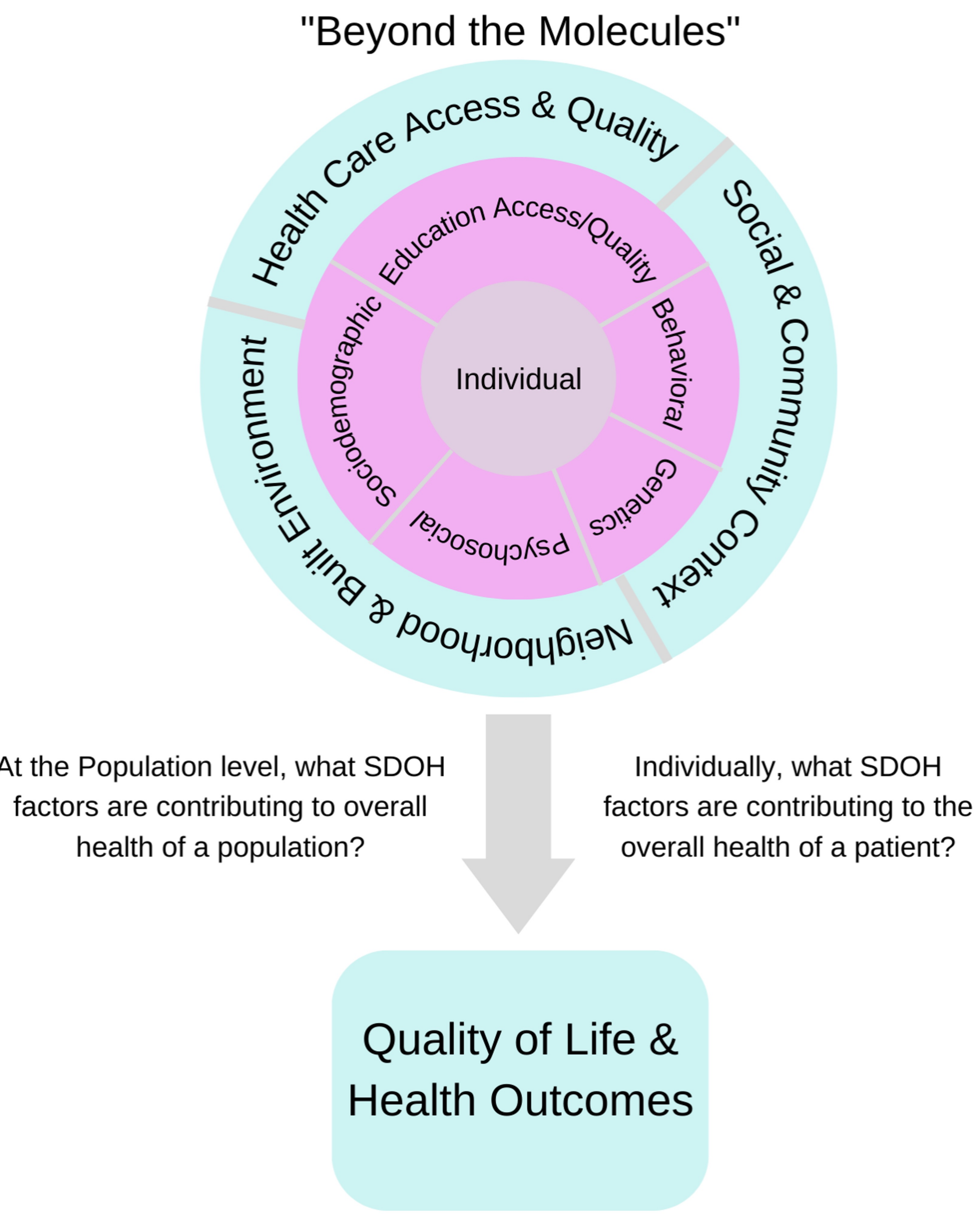
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BACKGROUND:

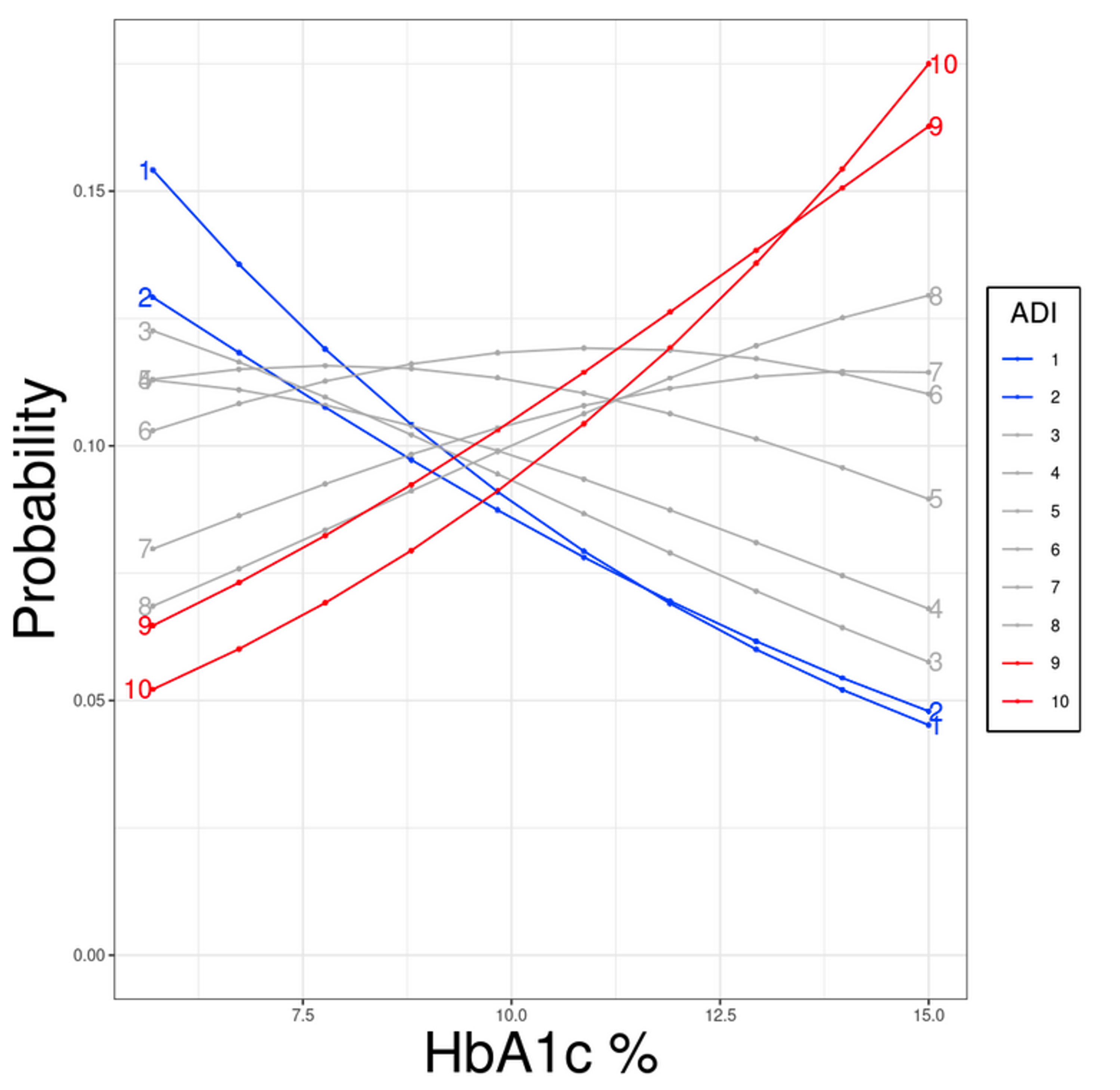
- Diabetes affects 29 million people in the United States and 420 million worldwide with the national treatment cost rising to \$327 billion.
- Risk factors for **T2DM** are obesity, inactivity, age, race/ethnicity, and genetic factors.
- Previous Translational research and practice addressing health equity in diabetes have generally focused on changing individual behavior or rather than directly targeting SDOH to increase health equity
- Social Determinants of Health** are not widely used in Real World Evidence Studies to understand **T2DM** treatment patterns and health outcomes across different population groups.

QUESTION: Does **SDOH** impact **T2DM** treatment selection and outcomes?

SDOH are the conditions in the environments where people are born, live, learn, work, and age that affects a wide range of health, and quality of life outcomes.



Patients from Poor Neighborhoods have greater T2DM disease severity at treatment initiation



Baseline Characteristics

ADI	1	2	3	4	5	6	7	8	9	10	Total
	N=14142	N=12386	N=12303	N=11887	N=12559	N=12110	N=9884	N=8887	N=8779	N=7412	N=110349
Sex											
Female	47 %	48 %	48 %	48 %	50 %	50 %	51 %	49 %	50 %	50 %	49 %
Male	53 %	52 %	52 %	52 %	50 %	50 %	49 %	51 %	50 %	50 %	51 %
Age											
Mean (SD)	64 ± 14	63 ± 14	62 ± 14	61 ± 14	60 ± 14	60 ± 14	59 ± 14	59 ± 14	59 ± 14	60 ± 13	61 ± 14
HbA1c											
Mean (SD)	6.9 ± 1.4	7.0 ± 1.5	7.1 ± 1.6	7.3 ± 1.7	7.4 ± 1.8	7.5 ± 1.9	7.5 ± 1.9	7.5 ± 1.9	7.7 ± 2.0	7.7 ± 2.0	7.3 ± 1.8
T2DM Treatment											
Metformin	57 %	54 %	53 %	51 %	49 %	48 %	48 %	47 %	45 %	41 %	50 %
Sulfonylurea	18 %	21 %	21 %	24 %	25 %	27 %	28 %	29 %	30 %	31 %	25 %
DPP4i	3 %	4 %	4 %	4 %	4 %	4 %	4 %	4 %	5 %	6 %	4 %
GLP-1 RA	3 %	3 %	3 %	3 %	2 %	3 %	3 %	3 %	3 %	3 %	3 %
SGLT2i	17 %	17 %	18 %	17 %	17 %	16 %	16 %	16 %	17 %	18 %	17 %
TZD's	1 %	1 %	2 %	1 %	2 %	2 %	2 %	2 %	2 %	2 %	2 %



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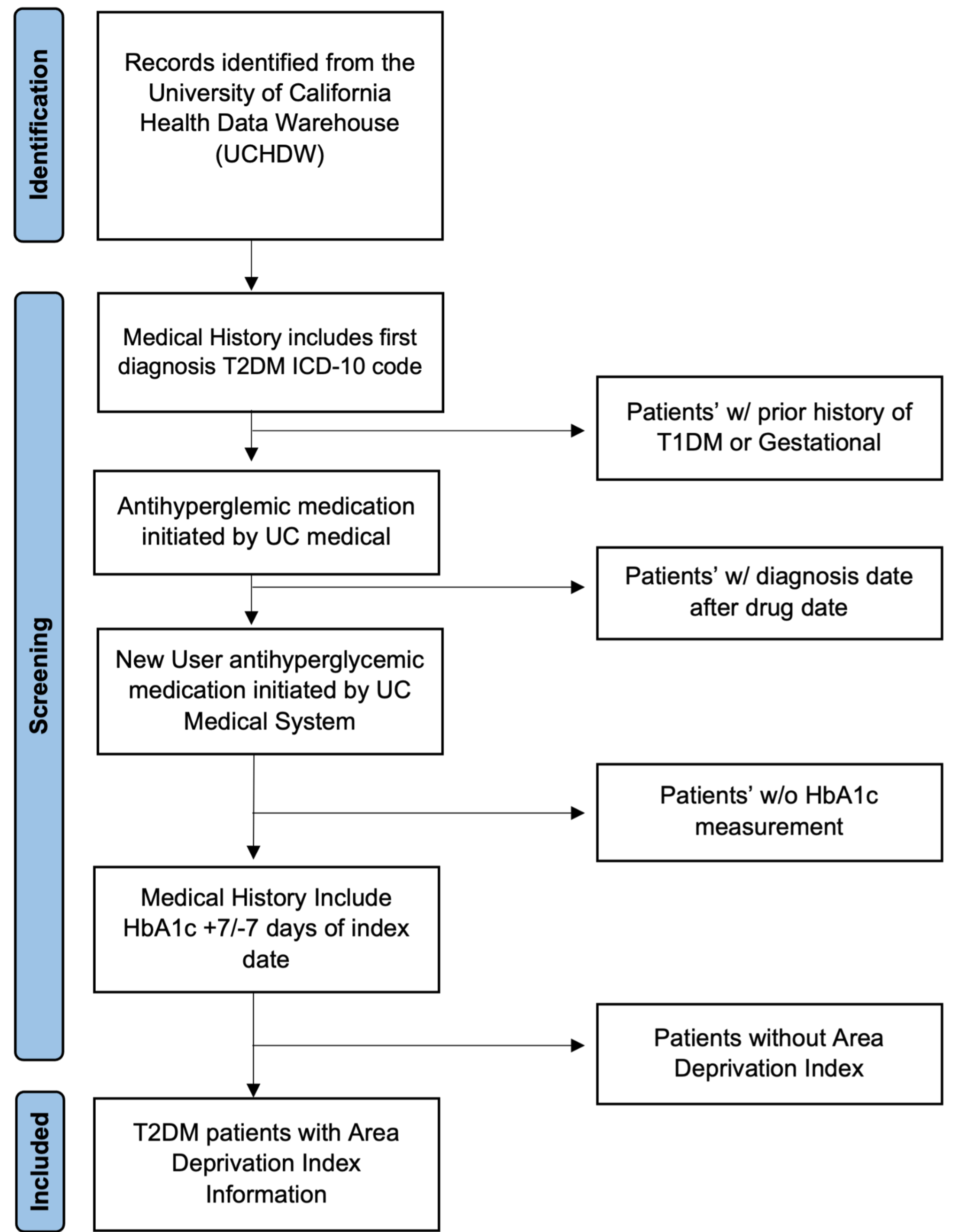
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METHODS:

- De-identified data from the multi-institutional University of California Health Data Warehouse (UCHDW) were extracted to finalize cohort.
- T2DM** disease severity was determined by patients' HbA1c levels.
- To evaluate SDOH, **Area Deprivation Index (ADI)** was used to rank individuals from 1-10 (Rich to Poor neighborhoods).
- Ordinal Logistic Regression to assess the association of SDOH on treatment selection.

University of California Data Warehouse Cohort Selection Criteria



RESULTS:

- The inclusion criteria led to 110,349 patients extracted for data analysis from six University of California academic health centers.
 - Metformin: 50%
 - Sulfonylurea: 25%
 - DPP4i: 4%
 - GLP1RA: 3%
 - SGLT2i: 17%
 - TZD: 2%
- Increased **T2DM** disease severity was significantly associated with **ADI** 1 being less severe than **ADI** 10 at new user treatment initiation (p=0.001).

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