Supplementary Table S1. Definition of Cardiovascular-kidney-metabolic risk factors at baseline

Cardio-metabolic risk factors	**Definition**
Overweight	Body mass index ≥23 kg/m^2
General obesity	Body mass index ≥27.5 kg/m^2
Central obesity	Waist circumference ≥90 cm for male and ≥80 cm for female
Hypertension	Systolic BP ≥140 mmHg or diastolic BP ≥90 mmHg and/or baseline use of blood pressure-lowering drugs
Dyslipidaemia	Total cholesterol ≥6.20 mmol/L (240 mg/dL), or LDL cholesterol >4.13 mmol/L (160 mg/dL), or triglycerides >2.25 mmol/L (200mg/dL) or HDL cholesterol <1.03 mmol/L (40 mg/dL), and/or baseline use of lipid-regulating agents
Microalbuminuria	Urine albumin-to-creatinine ratio 3-<30 mg/mmol
Macroalbuminuria	Urine albumin-to-creatinine ratio ≥30 mg/mmol

Supplementary Table S2: List of monogenic diabetes genes sequenced

Gene	Mode of inheritance	Subtypes	GenBank Reference Sequence	References
ABCC8	Dominant, recessive	NDM, MODY	NM_000352	(1-5)
AKT2	Dominant	IR	NM_001626	(6-7)
APPL1	Dominant	MODY	NM_012096	(8)
*CEL**	Dominant	MODY, Syndrome	NM_001807	(9-11)
CISD2	Recessive	NDM, Syndrome	NM_001008388	(12)
DCAF17	Recessive	Syndrome	NM_025000	(13)
DNAJC3	Recessive	Syndrome	NM_006260	(14)
DYRK1B	Dominant	Syndrome	NM_004714	(15)
*GATA4**	Dominant	NDM, Syndrome	NM_002052	(16)
GATA6	Dominant	NDM, Syndrome	NM_005257	(17-18)
GCK	Dominant, recessive	NDM, MODY	NM_000162	(19-23)
HNF1A	Dominant	MODY	NM_000545	(24-26)
HNF1B	Dominant	NDM, MODY, Syndrome	NM_000458	(27-29)
HNF4A	Dominant	MODY	NM_175914	(26,30-31)
INS	Dominant, recessive	NDM, MODY	NM_001291897	(32-35)

INSR	Dominant	NDM, IR	NM_000208	(36)
*KCNJ11**	Dominant	NDM, MODY	NM_000525	(37-41)
LMNA	Dominant	IR	NM_170707	(42-44)
*NEUROD1**	Dominant, recessive	NDM, MODY	NM_002500	(45-46)
PAX4	Dominant	MODY	NM_001366110	(47-51)
PAX6	Dominant	Syndrome	NM_000280	(52-54)
PCBD1	Recessive	Syndrome	NM_000281	(55-56)
*PDX1**	Dominant, recessive	NDM, MODY	NM_000209	(57-60)
PIK3R1	Dominant	Syndrome	NM_181523	(61)
PLIN1	Dominant	IR	NM_002666	(62)
*POLD1**	Dominant	IR	NM_001256849	(63)
PPARG	Dominant	IR	NM_015869	(64-65)
PPP1R15B	Recessive	Syndrome	NM_032833	(66)
RFX6	Recessive	NDM, MODY	NM_173560	(67)
SLC29A3	Recessive	NDM, Syndrome	NM_018344	(68-69)
TRMT10A	Recessive	Syndrome	NM_001134665	(70)
WFS1	Recessive	NDM, Syndrome	NM_006005	(71-72)
ZBTB20	Dominant	Syndrome	NM_001348803	(73)

ZFP57	Recessive	NDM	NM_001109809	(74)

* Due to technical limitations of designing target-specific primers for certain sequences, the coverage of the coding and flanking regions of the genes are as follows: CEL (87.3%), GATA4 (95.2%), KCNJ11 (90.1%), NEUROD1 (96.3%), PDX1 (94.0%) and POLD1 (96.4%)

Abbreviations:

IR, insulin resistance; MODY, maturity-onset diabetes of the young; NDM, neonatal diabetes mellitus.

ATP Binding Cassette Subfamily C Member 8, ABCC8

AKT Serine/Threonine Kinase 2, AKT2

Adaptor Protein, Phosphotyrosine Interacting With PH Domain And Leucine Zipper 1, APPL1

Carboxyl Ester Lipase, CEL

CDGSH Iron Sulfur Domain 2, CISD2

DDB1 And CUL4 Associated Factor 17, DCAF17

DnaJ Heat Shock Protein Family (Hsp40) Member C3, DNAJC3

Dual Specificity Tyrosine Phosphorylation Regulated Kinase 1B, DYRK1B

GATA Binding Protein 4, GATA4

GATA Binding Protein 6, GATA6

Glucokinase, GCK

hepatocyte nuclear factor-1 alpha, HNF1A

hepatocyte nuclear factor-1 beta, HNF1B

hepatocyte nuclear factor 4 alpha, HNF4A

Insulin, INS

Insulin Receptor, INSR

*Potassium Inwardly Rectifying Channel Subfamily J Member 11, KCNJ11**

Lamin A/C, LMNA

*Neurogenic differentiation 1, NEUROD1**

Paired Box 4, PAX4

Paired Box 6, PAX6

Pterin-4 Alpha-Carbinolamine Dehydratase 1, PCBD1

*pancreatic and duodenal homeobox 1, PDX1**

Phosphoinositide-3-Kinase Regulatory Subunit 1, PIK3R1

Perilipin 1, PLIN1

*DNA polymerase delta 1, POLD1**

Peroxisome proliferator activated receptor gamma, PPARG

Protein phosphatase 1 regulatory subunit 15B, PPP1R15B

Regulatory Factor X6, RFX6

Solute Carrier Family 29 Member 3, SLC29A3

TRNA Methyltransferase 10A, TRMT10A

Wolframin ER Transmembrane Glycoprotein, WFS1

Zinc Finger And BTB Domain Containing 20, ZBTB20

Zinc finger protein 57 homolog, ZFP57

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Supplementary Table S3. Genes used to construct polygenic risk scores for risk prediction of young-onset type 2 diabetes, diabetic complications and insulin requirement based on discoveries or verification in our cohort with supporting literature in other groups.

Polygenic risk score (PRS)	Genes involved in construction of PRS
PRS for young-onset type 2 diabetes	POU2F, WFS1, CPE, PAX4, IDE, DACH1
PRS for diabetic complications	AGT, AGTR1, NOS3, APOB, APOC3, APOE4, LPL, LIPC, PRKAG2, GNB3, PRKCB, GABRR1, TNF, AKR1B1, TNF, AKR1B1, UMOD
PRS for insulin requirement	AGT, AGTR1, NOS3, APOB, APOC3, APOE4, LPL, LIPC, PRKAG2, GNB3, PRKCB, GABRR1, TNF, AKR1B1, UMOD, PROX1-AS1, TMEM18, GCKR, COBLL1, UBE2E2, PTH1R, ADAMTS9-AS2, ST6GAL1, WFS1, C5orf67, POC5, CDKAL1, NFKBIL1, HLA-DOB, SLC22A3, DGKB, ANK1, TP53INP1, SLC30A8, GLIS3, CDKN2B-AS1/CKDN2B, CDKN28-AS1, TLE1, ABO, CDC123, CHUK, TCF7L2, KCNQ1, KCNJ11, ARAP1, MTNR1B, CCND2, KLHL42, RPSAP52, SOCS2, ZNF664-FAM101A, KL, SPRY2, C2CD4A, FTO, CMIP, ZZEF1, HNF1B, MC4R, SUGP1, GIPR, HNF4A, SLC22A1, SLC22A2, SLC47A1, C11orf65, SLC2A2, NBEA, CAPN10, CYP2C9, CYP2C19, IRS1, SLCO1B1, PPARG, ADIPOQ-AS1,

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Supplementary Table S4. Methods of laboratory assays

1. Conventional biochemical parameters

Entities of blood and urine tests (fasting blood samples for HbA1c, plasma glucose, lipid, renal function, liver function, complete blood count and spot urine albumin-to-creatinine ratio (ACR) included as a part of complication screening program guided by JADE protocol was assayed in the Department of Chemical Pathology and Hematology Laboratory of the Department of Anatomical and Cellular Pathology at the Prince of Wales Hospital. The laboratory services were both accredited by the Accreditation Canada (AC) Diagnostics. HbA1c was measured by immunoassay; glucose, lipid, urea, creatinine and liver enzymes by spectrophotometry; sodium and potassium by ion selective electrode method; urine albumin and creatinine by immunoassay and spectrophotometry respectively; complete blood count by automated hematology analyser.

2. *Fasting C-peptide and glutamic acid decarboxylase antibodies (GADA)*

Assays of serum fasting C-peptide and GADA were performed in the CUHK Diabetes and Obesity Laboratory, Li Ka Shing Institute of Health Sciences at the PWH. Serum C-peptide was measured by Mercodia@ C-peptide ELISA kit with a detection limit of 103 pmol/L. The intra-assay and inter-assay coefficients of variation (CV) were less than 6.8% and 4.8%, respectively. GADA was measured using the GAD Autoantibody ELISA kit (RSR Limited) with detection limit of 0.57 units/mL. A GADA titre of ≥5.0 U/mL was considered as GADA positivity in this study. The respective intra-assay and inter-assay CVs were 3.5–7.3% and 5.2–6.4% for a GADA range of 5.7–97 units/mL.

3. *Quantitative polymerase-chain reaction (qPCR), genotyping and next generation sequencing (NGS)*

We extracted DNA from blood samples to conduct genotyping, and targeted gene sequencing and qPCR.

We performed genotyping using Infinium® Asian Screening Array. The standard quality control

(QC) procedures were applied on the genome-wide SNP array data. The per-individual QC of genotype data consists of four steps: (1) sex checking based on the genotype call from chromosome X; (2) detection of low-quality samples based on outlying missing genotype and heterozygosity rate; (3) identification of possibly-related individuals or duplicated samples by estimates of identity-by-descent (IBD); (4) detection of population stratification by performing principal component analysis (PCA). Candidate variants and their risk alleles associated with type 2 diabetes, cardiovascular-kidney complications, or glycaemic deterioration were identified from published literatures (Supplementary table S4). Candidate variants with missing genotypes were replaced by proxy SNPs which were in linkage disequilibrium ($r2 \geq 0.9$) with the original SNPs or the most common genotype in East Asians from 1000 Genomes Project. Genetic risk scores were calculated by summing up the number of risk alleles for each variant without weighting.

Targeted sequencing was used to identify variants for monogenic diabetes. The panel utilized in this study encompassed 34 genes known to be linked with neonatal diabetes, MODY, syndromic diabetes, and monogenic diabetes associated with severe insulin resistance (Supplementary Table S3). The sequencing regions covered exons and flanking regions located within 25 base pairs (bp) upstream and downstream of each exon. DNA libraries were prepared according to the workflow of AmpliSeq for Illumina Custom Panels (Illumina). Pooled libraries were loaded onto the Illumina MiSeq system and subjected to paired-end sequencing with a read length of 151 cycles. The quality assessment of raw sequencing data was performed using FastQC (Babraham Institute). Reads alignment and variant calling were conducted using the Local Run Manager in DNA Amplicon analysis module (Illumina).

The hotspot variant - A3243G mutation of mitochondrial DNA (mtA3243G) for monogenic

diabetes, were detected by qPCR using KAPA Probe Master Mix on Roche LightCycler 480 Instrument.

The interpretation of variants followed the guidelines developed by the American College of Medical Genetics and Genomics (ACMG). Variants were classified as “pathogenic” (P), “likely pathogenic” (LP), “variants of uncertain significance” (VUS), “likely benign” and “benign” based on the combined scored evidence criteria outlined in the ACMG guidelines. In this study, patients were considered to have monogenic diabetes if they were heterozygous or homozygous carriers of P/LP variants in autosomal dominant inheritance, or, homozygous or compound heterozygous carriers of P/LP variants in autosomal recessive inheritance.

Supplementary Table S5 Definition of selected primary and secondary outcomes

Clinical outcomes	**Definition**
Coronary heart disease	ICD-9 Diagnosis Codes 410-414
Congestive heart failure	ICD-9 Diagnosis Codes 428
Stroke	ICD-9 Diagnosis Codes 430-438
Peripheral artery disease	ICD-9 Diagnosis Codes 250.7, 443.81, 443.9, 785.4, 895-897 ICD-9 Procedure Codes 39.29, 39.90, 84.1
Cardiovascular disease	A composite of coronary heart disease, congestive heart failure, stroke, and peripheral artery disease
Chronic kidney disease	Estimated glomerular filtration rate [eGFR]<60 ml/min/1.73m^2 on 2 occasions at least 3 months apart, need for dialysis or kidney replacement therapy
Progression of chronic kidney disease	A change in stage of chronic kidney disease from stage G3 (estimated GFR 30-59 ml/min/1.73m^2) to stage G4 (estimated GFR 15-29 ml/min/1.73m^2) or G5 (estimated GFR <15 ml/min/1.73m^2), or from stage G4 to stage G5
Progression of albuminuria	Change from microalbuminuria (urine ACR 3.0-<30 mg/mmol) to macroalbuminuria (urine ACR ≥30 mg/mmol)
Diabetic retinopathy (DR)	Mild non-proliferative DR: microaneurysms, retinal haemorrhages and hard exudates Moderate non-proliferative DR: mild non-proliferative DR plus cotton-wool spots and/or intra-retinal microvascular abnormality (IRMA) Severe non-proliferative DR: any of the followings (4-2-1 rule): o Microaneurysms in four quadrants o Marked venous beading in two or more quadrants o Moderate IRMA in one or more quadrant Proliferative: Presence of new vessels and/ or fibrous proliferations; or pre-retinal and/ or vitreous haemorrhage
Incident and/or progression of diabetic retinopathy	Worsening of diabetic retinopathy in either eye from mild to moderate, or moderate to severe non-proliferative, or non-proliferative to proliferative, incident vitreous

	haemorrhage, photocoagulation, vitrectomy
Visual impairment	Visual acuity (VA) < 20/200 in either eye, or new operation for cataract or glaucoma
Sensory neuropathy	At least 2 out of 3 of the following in one of the lower limbs: • reduced sensation to monofilament, • reduced vibration sense, or • self-reported abnormal sensation
Severe hypoglycaemia	ICD-9 Diagnosis Codes 251.2

Supplementary Table S6. Baseline characteristics of participants with young-onset diabetes based on JADE-guided assessments in the JADE-only group and JADE-PRISM group.

Characteristics	JADE-only Group (n = 443)		JADE-PRISM Group (n = 441)		Total (n = 884)		*P* value
	Number of patients	Observations	Number of patients	Observations	Number of patients	Observations	
Demographics, socio-economic status and social habits							
Age	443	40.47 ± 6.55	441	40.89 ± 6.53	884	40.68 ± 6.54	0.343
Men, n (%)	443	241 (54.4)	441	259 (58.7)	884	500 (56.6)	0.219
Employed (full-time or part-time), n (%)	441	370 (83.9)	438	360 (82.2)	879	730 (83.0)	0.558
Manual worker among those employed, n (%)	433	91 (21.0)	426	99 (23.2)	859	190 (22.1)	0.482
High school or above education attained, n (%)	442	208 (47.1)	441	200 (45.4)	883	408 (46.2)	0.659
Current or former tobacco use, n (%)	443	141 (31.8)	435	144 (33.1)	878	285 (32.5)	0.740
Regular or occasional alcohol use, n (%)	443	164 (37.0)	435	157 (36.1)	878	321 (36.6)	0.829
Family history and growth experience							
Family history of diabetes, n (%)	433	330 (76.2)	438	321 (73.3)	871	651 (74.7)	0.360
History of diabetes of father, n (%)	433	188 (43.4)	439	203 (46.2)	872	391 (44.8)	0.441
History of diabetes of mother, n (%)	433	211 (48.7)	440	198 (45.0)	873	409 (46.8)	0.300
History of diabetes of both parents, n (%)	433	82 (18.9)	440	90 (20.5)	873	172 (19.7)	0.632
History of diabetes of siblings, n (%)	433	90 (20.8)	438	77 (17.6)	871	167 (19.2)	0.265
Diabetes-related history and comorbidities							
Age of diagnosis	443	34 [29, 38]	441	34 [29, 38]	884	34 [29, 38]	0.685
Duration of diabetes (years)	443	7 [3, 11]	441	7 [3, 12]	884	7 [3, 12]	0.425
History of diabetes ketoacidosis	0	NA	420	10 (2.4)	420	10 (2.4)	NA
Cardiovascular disease	443	23 (5.2)	441	23 (5.2)	884	46 (5.2)	1
Coronary artery disease	443	14 (3.2)	441	16 (3.6)	884	30 (3.4)	0.843
Stroke	443	6 (1.4)	441	5 (1.1)	884	11 (1.2)	1

Peripheral artery disease	443	4 (0.9)	441	2 (0.5)	884	6 (0.7)	0.686
Congestive heart failure	443	5 (1.1)	441	2 (0.5)	884	7 (0.8)	0.451
Chronic kidney disease	443	26 (5.9)	441	9 (2.0)	884	35 (4.0)	0.006
End-stage kidney disease – non dialysis	443	3 (0.7)	441	1 (0.2)	884	4 (0.5)	0.619
Cardiovascular and/or chronic kidney disease	443	45 (10.2)	441	31 (7.0)	884	76 (8.6)	0.124
History of all-site cancer	443	6 (1.4)	441	21 (4.8)	884	27 (3.1)	0.006
Sensory neuropathy	443	2 (0.5)	435	1 (0.2)	878	3 (0.3)	1
Retinopathy	443	58 (13.1)	436	63 (14.4)	879	121 (13.8)	0.627
Diabetes education, self-management and hypoglycemia							
Self-reported hypoglycemia in last three months	441	132 (29.9)	434	100 (23.0)	875	232 (26.5)	0.026
Self-monitoring of blood glucose per week, n (%)	437	193 (44.2)	429	180 (42.0)	866	373 (43.1)	0.557
Physical activity ≥3 times per week, n (%)	441	71 (16.1)	434	86 (19.8)	875	157 (17.9)	0.179
Good adherence to balanced diet, n (%)	441	148 (33.6)	431	159 (36.9)	872	307 (35.2)	0.338
Education by dietitian, n (%)	441	352 (79.8)	434	340 (78.3)	875	692 (79.1)	0.650
Education by podiatrist, n (%)	442	80 (18.1)	434	85 (19.6)	876	165 (18.8)	0.634
Education by diabetes nurse, n (%)	441	372 (84.4)	434	379 (87.3)	875	751 (85.8)	0.244
Physical measurements and cardio-metabolic risk factors							
Body mass index (kg/m^2)	443	28.65 ± 5.79	441	28.15 ± 5.75	884	28.40 ± 5.77	0.197
Waist circumference, male (cm)	241	100.35 ± 14.16	254	99.22 ± 13.82	495	99.77 ± 13.99	0.367
Waist circumference, female (cm)	201	95.06 ± 13.60	180	92.63 ± 13.98	381	93.91 ± 13.82	0.086
Systolic blood pressure (mmHg)	443	128.65 ± 16.98	441	128.89 ± 16.52	884	128.77 ± 16.74	0.830
Diastolic blood pressure (mmHg)	442	80.13 ± 11.39	441	80.04 ± 11.60	883	80.08 ± 11.49	0.912
Overweight, n (%)	443	378 (85.3)	441	363 (82.3)	884	741 (83.8)	0.260
General obesity, n (%)	443	238 (53.7)	441	216 (49.0)	884	454 (51.4)	0.179
Central obesity, n (%)	442	358 (81.0)	434	336 (77.4)	876	694 (79.2)	0.222
Hypertension, n (%)	442	311 (70.4)	441	278 (63.0)	883	589 (66.7)	0.025
Dyslipidemia, n (%)	440	332 (75.5)	436	337 (77.3)	876	669 (76.4)	0.575
Albuminuria, n (%)	443	161 (36.3)	435	150 (34.5)	878	311 (35.4)	0.613

Microalbuminuria, n (%)	443	108 (24.4)	435	102 (23.4)	878	210 (23.9)	0.807
Macroalbuminuria, n (%)	443	53 (12.0)	435	48 (11.0)	878	101 (11.5)	0.745
Laboratory investigations							
Fasting plasma glucose (mmol/L)	443	7.94 ± 2.99	441	8.00 ± 2.73	884	7.97 ± 2.86	0.746
HbA1c (%)	443	7.48 ± 1.70	441	7.56 ± 1.62	884	7.52 ± 1.66	0.502
Range of HbA1c, n (%)	443		441		884		0.519
HbA1c <6.0%		48 (10.8)		35 (7.9)		83 (9.4)	
HbA1c 6.0-<7.0%		154 (34.8)		148 (33.6)		302 (34.2)	
HbA1c 7.0-<8.0%		123 (27.8)		134 (30.4)		257 (29.1)	
HbA1c 8.0-<9.0%		51 (11.5)		59 (13.4)		110 (12.4)	
HbA1c ≥9.0%		67 (15.1)		65 (14.7)		132 (14.9)	
Total cholesterol (mmol/L)	422	4.34 ± 0.91	417	4.35 ± 0.90	839	4.34 ± 0.90	0.860
HDL cholesterol (mmol/L)	439	1.18 ± 0.31	435	1.21 ± 0.31	874	1.19 ± 0.31	0.136
LDL cholesterol (mmol/L)	424	2.27 ± 0.76	419	2.26 ± 0.76	843	2.26 ± 0.76	0.787
Triglycerides (mmol/L)	443	1.40 [1.00, 2.20]	435	1.40 [1.00, 2.20]	878	1.40 [1.00, 2.20]	0.865
Urine albumin-to-creatinine ratio (mg/mmol)	443	1.60 [0.70, 6.40]	435	1.40 [0.70, 7.10]	878	1.48 [0.70, 6.68]	0.635
Estimated GFR (mL/min/1.73m^2)	443	106.67 [92.37, 115.07]	441	107.72 [95.78, 114.99]	884	107.21 [94.17, 115.04]	0.239
CKD grade, n (%)	443		441		884		0.074
CKD grade 1 (eGFR ≥90 mL/min/1.73m^2)		346 (78.1)		361 (81.9)		707 (80.0)	
CKD grade 2 (eGFR 60-89 mL/min/1.73m^2)		73 (16.5)		71 (16.1)		144 (16.3)	
CKD grade 3 (eGFR 30-59 mL/min/1.73m^2)		20 (4.5)		9 (2.0)		29 (3.3)	
CKD grade 4 (eGFR 15-29 mL/min/1.73m^2)		3 (0.7)		0 (0.0)		3 (0.3)	
CKD grade 5 (eGFR <15 mL/min/1.73m^2)		1 (0.2)		0 (0.0)		1 (0.1)	
Alkaline phosphatase, ALP (IU/L)	443	64.00 [53.00, 77.50]	435	65.00 [55.00, 76.00]	878	64.00 [54.00, 77.00]	0.501
Alanine transaminase, ALT (IU/L)	443	26.00 [18.00, 42.00]	435	28.00 [20.00, 41.00]	878	27.00 [19.00, 41.75]	0.213

ALT ≥47 IU/L, n (%)	443	98 (22.1)	435	91 (20.9)	878	189 (21.5)	0.725
Medications at enrolment, n (%)			441				
Glucose-lowering drugs	438	424 (96.8)	439	420 (95.7)	877	844 (96.2)	0.482
Insulin	443	124 (28.0)	441	121 (27.4)	884	245 (27.7)	0.913
Glucagon-like peptide-1 receptor agonist	443	26 (5.9)	441	22 (5.0)	884	48 (5.4)	0.668
Oral glucose-lowing drugs	443	416 (93.9)	439	411 (93.2)	884	827 (93.6)	0.771
Dipeptidyl peptidase-4 inhibitor	438	198 (45.2)	439	189 (43.1)	877	387 (44.1)	0.566
Metformin	438	400 (91.3)	439	392 (89.3)	877	792 (90.3)	0.367
Sodium–glucose cotransporter 2 inhibitor	438	130 (29.7)	439	125 (28.5)	877	255 (29.1)	0.750
Sulphonylurea	438	145 (33.1)	439	171 (39.0)	877	316 (36.0)	0.083
Thiazolidinedione	438	65 (14.8)	439	65 (14.8)	877	130 (14.8)	1
Number of glucose-lowering drugs used	438		439		877		0.689
≤2		221 (50.5)		229 (52.2)		450 (51.3)	
3-4		190 (43.4)		179 (40.8)		369 (42.1)	
≥5		27 (6.2)		31 (7.1)		58 (6.6)	
Blood pressure-lowering drugs	443	282 (63.7)	441	246 (55.8)	884	528 (59.7)	0.020
Renin–angiotensin system inhibitor	438	219 (50.0)	438	207 (47.3)	876	426 (48.6)	0.457
ACE inhibitors	438	108 (24.7)	438	111 (25.3)	876	219 (25.0)	0.876
Angiotensin II receptor blockers	438	111 (25.3)	438	96 (21.9)	876	207 (23.6)	0.266
Lipid-regulating drugs	443	261 (58.9)	441	265 (60.1)	884	526 (59.5)	0.774
Statin	438	238 (54.3)	436	239 (54.8)	874	477 (54.6)	0.941
Aspirin	443	35 (7.9)	441	24 (5.4)	884	59 (6.7)	0.184
Treatment target attainment, n (%)							
Conventional targets							
HbA1c <7.0%	443	202 (45.6)	441	183 (41.5)	884	385 (43.6)	0.245
Blood pressure <130/80 mmHg	443	183 (41.3)	441	185 (42.0)	884	368 (41.6)	0.900
LDL cholesterol <2.6mmol/L (or <1.8 mmol/L in presence of cardiovascular disease)	424	280 (66.0)	419	284 (67.8)	843	564 (66.9)	0.642

All three targets above	441	65 (14.7)	438	61 (13.9)	879	126 (14.3)	0.805
Strict targets							
HbA1c <6.2%	443	84 (19.0)	441	54 (12.2)	884	138 (15.6)	0.008
Blood pressure <120/80 mmHg	443	123 (27.8)	441	118 (26.8)	884	241 (27.3)	0.794
LDL cholesterol <1.8 mmol/L	424	97 (22.9)	419	110 (26.3)	843	207 (24.6)	0.290
Triglycerides <1.2 mmol/L	443	152 (34.3)	435	151 (34.7)	878	303 (34.5)	0.957
Waist circumference <80 cm in female and <85cm in male	442	56 (12.7)	434	62 (14.3)	876	118 (13.5)	0.548
Attainment of 3 or more targets	423	55 (13.0)	418	60 (14.4)	841	115 (13.7)	0.638
Patient reported outcomes and psychological-behavioral parameters using structured questionnaires							
EQ-5D index value (quality of life)	430	0.88 [0.87, 0.96]	426	0.88 [0.87, 0.96]	856	0.88 [0.87, 0.96]	0.663
DASS-21 (negative emotions), total score	429	9.00 [3.00, 17.00]	423	8.00 [3.00, 17.00]	852	9.00 [3.00, 17.00]	0.420
DASS-21 score ≥17, n (%)	429	114 (26.6)	423	110 (26.0)	852	224 (26.3)	0.912
PHQ-9 (depression), total score	426	4.00 [2.00, 8.00]	426	4.00 [1.00, 7.00]	852	4.00 [1.00, 7.00]	0.270
PHQ-9 score ≥7, n (%)	426	132 (31.0)	426	129 (30.3)	852	261 (30.6)	0.882
CDDS-15 (diabetes distress), total score	418	41.34 ± 12.90	422	40.57 ± 12.16	840	40.95 ± 12.53	0.370
CDDS-15 score ≥45, n (%)	418	161 (38.5)	422	155 (36.7)	840	316 (37.6)	0.643
DES-20 (self-efficacy), total score	431	55.07 ± 10.38	425	56.10 ± 10.35	856	55.58 ± 10.37	0.144
SDSCA-15 (self-care), mean score							
Diet	433	3.75 [2.75, 4.50]	426	3.75 [2.75, 4.50]	859	3.75 [2.75, 4.50]	0.817
Exercise	431	2.00 [1.00, 3.00]	428	2.00 [1.00, 3.00]	859	2.00 [1.00, 3.00]	0.684
Blood glucose monitoring	421	1.00 [0.00, 3.00]	425	1.00 [0.00, 2.00]	846	1.00 [0.00, 2.00]	0.071
Foot care	428	3.00 [2.33, 4.33]	428	3.00 [2.33, 4.67]	856	3.00 [2.33, 4.67]	0.729
Medication	215	3.67 [2.33, 4.67]	183	4.33 [2.33, 4.67]	398	4.00 [2.33, 4.67]	0.798
CQ-4 (medication adherence), total score	431	4.00 [3.00, 4.00]	421	4.00 [3.00, 4.00]	852	4.00 [3.00, 4.00]	0.560
Medication adherence, n (%)	431		421		852		0.828
High adherence		241 (55.9)		243 (57.7)		484 (56.8)	
Intermediate adherence		154 (35.7)		142 (33.7)		296 (34.7)	

Low adherence	36 (8.4)	36 (8.6)	72 (8.5)

Glycated haemoglobin, HbA1c; high-density lipoprotein cholesterol, HDL cholesterol; low-density lipoprotein cholesterol, LDL cholesterol; glomerular filtration rate, GFR; chronic kidney disease, CKD; 21-item Depression, Anxiety and Stress Scale, DASS-21; Patient Health Questionnaire-9, PHQ-9; 15-item Chinese Diabetes Distress Scale, CDDS-15; 20-item Diabetes Empowerment Scale, DES-20; 14-item Summary of Diabetes Self Care Activities Assessment, SDSCA-14; 4-item Compliance Questionnaire (CQ-4)

EQ-5D: score ranges from 0 to 1, where 1 represents full health and 0 represents a health state equivalent to death ; DASS-21: score ranges from 0 to 63, a higher score indicates a higher severity/ frequency of negative emotion states of depression/anxiety/stress; PHQ-9: score ranges from 0 to 27, a higher score indicates a higher severity of depression; CDDS-15: score ranges from 0 to 90, a higher score indicates a high level of diabetes distress; DES-20 : score ranges from 0 to 80; a higher score indicates a higher level of patient empowerment; SDSCA-14: score for each domain of diabetes self-care activities shown ranges from 0 to 7 days/week practising appropriate corresponding diabetes self-care activities; CQ-4 : score ranges from 0 to 4, a higher score indicates a lower level of medication adherence.