Electronic supplementary material (ESM)

Prediabetes and risk of mortality, diabetes-related complications and comorbidities: umbrella review of meta-analyses of prospective studies

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ESM Table 1: Search strategy for e.g. PubMed

#1	(Prediabetic State[MeSH] or Glucose Intolerance[MeSH] OR Glycated Hemoglobin A [MeSH]) OR (prediabetes OR prediabetic OR “impaired glucose tolerance” OR IGT OR “impaired fasting glucose” OR IFG OR “impaired FPG”) OR (“HbA(1c)” OR HbA1 OR HbA1c OR “HbA 1c” OR ((glycosylated OR glycated) hemoglobin))
#2	"systematic review" OR meta-analysis
#3	Combine: #1 AND #2

ESM Table 2: Extracted data

From meta-analyses	• name of the first author • publication year • number of included studies • study design of the primary studies • definition of prediabetes • outcome • total number of cases and participants • definition of the comparison • statistical model that had been used to summarize the risk ratios • summary risk ratios and their 95% confidence intervals • confounders • information on funding • and conflict of interest
From primary studies	• name of the first author • publication year • country • definition of prediabetes • outcome • number of total cases and participants (if not provided in the meta-analyses) • risk estimates (hazard ratios, relative risks or odds ratios) that adjusted for the most confounders along with their 95% confidence intervals • confounders (if not provided in the meta-analyses)

ESM Table 3: List of excluded studies

Reasons for exclusion	**Reference**
Not relevant exposure, including not relevant prediabetes definition	[1-39]
Not relevant population/in patients with diabetes	[40-51]
Not relevant data	[52-64]
No meta-analysis	[65-77]
Superseded	[78-85]
Conference abstract/editorial/comment	[86-93]
Not systematic	[94-97]
Protocol	[98-100]
Not relevant primary study design	[101-108]
Not relevant outcome	[109, 110]
Duplicate	[111-113]

ESM Table 4: Characteristics of the included meta-analyses on prediabetes and diabetes-related complications, comorbidities, and mortality

Outcome	**Reference**	***No.* of primary studies**	**Prediabetes definition**	**Prediabetes assessment criteria**	No. **of participants/ No. of cases**[a]	**Summary HR (95% CI)**	I^2 **(%)**	τ^2	**95% PI**
All-cause mortality									
All-cause mortality	Cai 2020[114]	18	IFG	ADA	6'320'757 / na	**1.08 (1.03; 1.13)**	54	0.003	0.95; 1.23
All-cause mortality	Cai 2020[114]	19	IFG	WHO	325'446 / na	**1.13 (1.05; 1.20)**	41	0.007	0.93; 1.36
All-cause mortality	Cai 2020[114]	15	IGT	ADA/WHO	210'114 / na	**1.25 (1.17; 1.32)**	28	0.003	1.08; 1.44
All-cause mortality	Cai 2020[114]	7	HbA_{1c}	ADA	241'654 / na	0.98 (0.91; 1.05)	11	0.001	0.87; 1.11
All-cause mortality	Cai 2020[114]	2	IFG and/or IGT	ADA	2428 / na	1.14 (0.82; 1.58)	0	0.000	na
All-cause mortality	Cai 2020[114]	8	IFG and/or IGT	WHO	277'949 / na	**1.17 (1.13; 1.20)**	0	0.000	1.12; 1.21
All-cause mortality	Cai 2020[114]	4	IFG and/or HbA_{1c}	ADA	308'326 / na	1.05 (0.94; 1.16)	0	0.000	0.88; 1.24
Long-term all-cause mortality (in patients after PCI)	Li 2020[115]	3	HbA_{1c}	ADA	4085 / 298	1.18 (0.92; 1.50)	0	0.000	0.24; 5.72
Short-term all-cause mortality (in patients after PCI)	Li 2020[115]	2	HbA_{1c}	ADA	3633 / 122	1.00 (0.69; 1.44)	0	0.000	na
All-cause mortality (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	5	IFG	ADA	6633 / na	1.60 (1.15; 2.22)	70	0.091	0.54; 4.78
All-cause mortality (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	5	IFG	WHO	29497 / 6492	1.19 (0.98; 1.45)	65	0.023	0.67; 2.12
All-cause mortality (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	3	IGT	ADA/WHO	1919 / 140	1.34 (0.94; 1.93)	0	0.000	0.13; 14.00

All-cause mortality (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	2	HbA_{1c}	ADA	3205 / 137	2.30 (0.56; 9.41)	77	0.814	na
All-cause mortality (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	2	IFG and/or IGT	ADA	1067 / na	1.62 (0.96; 2.73)	0	0.000	na
All-cause mortality (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	2	IFG and/or IGT	WHO	2406 / na	1.07 (0.75; 1.52)	0	0.000	na
Cardiovascular outcomes & cardiovascular mortality									
CV events	Cai 2020[114]	22	IFG	ADA	1'190'425 / na	**1.09 (1.03; 1.15)**	61	0.008	0.90; 1.32
CV events	Cai 2020[114]	25	IFG	WHO	344'915 / na	**1.20 (1.09; 1.34)**	60	0.032	0.82; 1.77
CV events	Cai 2020[114]	19	IGT	ADA/WHO	223'370 / na	**1.23 (1.13; 1.34)**	44	0.012	0.96; 1.58
CV events	Cai 2020[114]	8	HbA_{1c}	ADA	255'198 / na	1.05 (0.97; 1.13)	42	0.005	0.86; 1.27
CV events	Cai 2020[114]	2	IFG and/or IGT	ADA	2760 / na	1.15 (0.91; 1.45)	0	0.000	na
CV events	Cai 2020[114]	7	IFG and/or IGT	WHO	276'787 / na	1.10 (0.99; 1.21)	25	0.004	0.89; 1.35
CV events	Cai 2020[114]	6	IFG and/or HbA_{1c}	ADA	319'644 / na	1.05 (0.97; 1.13)	0	0.000	0.94; 1.16
CV events	Cai 2020[114]	2	IFG and/or HbA_{1c} and/or IGT	ADA	86'808 / na	0.98 (0.92; 1.05)	0	0.000	na
CV events (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	6	IFG	ADA	9370 / na	**1.33 (1.02; 1.75)**	81	0.085	0.54; 3.28
CV events (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	5	IFG	WHO	16558 / na	1.49 (0.99; 2.24)	83	0.141	0.38; 5.82

CV events (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	6	IGT	ADA/WHO	6369 / na	**1.52 (1.24; 1.85)**	0	0.000	1.15; 2.01
CV events (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	4	HbA_{1c}	ADA	10990 / na	**1.24 (1.05; 1.48)**	0	0.000	0.85; 1.81
CV events (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	2	IFG and/or HbA_{1c}	ADA	7153 / 209	**1.61 (1.07; 2.43)**	2	0.002	na
CV events (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	2	IFG and/or HbA_{1c} and/or IGT	ADA	3455 / na	1.16 (0.86; 1.57)	0	0.000	na
CV mortality[c]	Huang 2016[116]	6	IFG	ADA	na / na	**1.27 (1.02; 1.58)**	na	na	na
CV mortality[c]	Huang 2016[116]	13	IFG	WHO	na / na	**1.20 (1.05; 1.38)**	na	na	na
CV mortality[c]	Huang 2016[116]	9	IGT	ADA/WHO	na / na	**1.30 (1.18; 1.44)**	na	na	na
CVD incidence[c]	Huang 2016[116]	9	IFG	ADA	na / na	**1.10 (1.03, 1.18)**	na	na	na
CVD incidence[c]	Huang 2016[116]	5	IFG	WHO	na / na	**1.39 (1.15, 1.68)**	na	na	na
CVD incidence[c]	Huang 2016[116]	4	IGT	ADA/WHO	na / na	**1.29 (1.11, 1.50)**	na	na	na
CHD	Cai 2020[114]	22	IFG	ADA	1’207’240 / na	**1.09 (1.05; 1.13)**	4	0.000	1.03; 1.15
CHD	Cai 2020[114]	12	IFG	WHO	86’407 / na	**1.17 (1.09; 1.26)**	0	0.000	1.08; 1.28
CHD	Cai 2020[114]	11	IGT	ADA/WHO	50’506 / na	**1.21 (1.09; 1.34)**	0	0.000	1.07; 1.36
CHD	Cai 2020[114]	3	HbA_{1c}	ADA	81’949 / na	**1.30 (1.04; 1.62)**	76	0.028	0.10; 16.90
CHD	Cai 2020[114]	5	IFG and/or IGT	WHO	50’217 / na	**1.17 (1.02; 1.35)**	0	0.000	0.94; 1.47
CHD	Cai 2020[114]	2	IFG and/or HbA_{1c}	ADA	73’987 / na	1.11 (0.88; 1.39)	0	0.000	na

CHD (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	2	IFG	ADA	2967 / 536	1.10 (0.92; 1.30)	0	0.000	na
CHD (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	2	IFG	WHO	11829 / 650	1.24 (0.99; 1.56)	0	0.000	na
CHD (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	3	IGT	ADA/WHO	2545 / 209	1.14 (0.84; 1.54)	0	0.000	0.16; 8.10
CHD (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	2	HbA_{1c}	ADA	6782 / 91	1.16 (0.65; 2.05)	0	0.001	na
Stroke	Cai 2020[114]	16	IFG	ADA	1'635'506 / na	**1.06 (1.01; 1.11)**	16	0.001	0.97; 1.16
Stroke	Cai 2020[114]	8	IFG	WHO	698'478 / na	**1.18 (1.10; 1.26)**	0	0.000	1.08; 1.28
Stroke	Cai 2020[114]	8	IGT	ADA/WHO	31'047 / na	**1.30 (1.10; 1.54)**	42	0.022	0.86; 1.98
Stroke	Mitsios 2018[117]	4	HbA_{1c}	ADA	44'431 / 1578	1.19 (0.87; 1.63)	61.9	0.054	0.35; 4.00
Stroke	Cai 2020[114]	2	IFG and/or IGT	WHO	3013 / na	1.16 (0.81; 1.65)	0	0.000	na
Stroke	Cai 2020[114]	2	IFG and/or HbA_{1c}	ADA	73'987 / na	1.01 (0.79; 1.30)	0	0.000	na
Stroke (in patients with atherosclerotic cardiovascular disease)	Cai 2020[114]	2	IFG	ADA	2967 / 287	0.99 (0.63; 1.54)	62	0.068	na
Atrial fibrillation	Aune 2018[118]	3	IFG	ADA/ WHO	248'598 / 3301	**1.13 (1.003; 1.27)**	0	0.000	0.52; 2.45
Atrial fibrillation	Aune 2018[118]	3	IFG	ADA	248'598 / 3301	**1.13 (1.03; 1.24)**	0	0.000	0.63; 2.04
Heart failure	Cai 2021	10	IFG	ADA	8'962'851 / na	**1.10 (1.06, 1.14)**	55	0.001	1.01; 1.20
Heart failure	Cai 2021	6	IFG	WHO	22941 / na	**1.18 (1.07, 1.30)**	0	0.000	1.3; 1.36
Heart failure	Cai 2021	3	IGT	ADA/ WHO	2317 / 271	**1.58 (1.04, 2.39)**	26	0.042	0.04; 65.80

Sudden cardiac death	Aune 2018[119]	2	IFG / IGT	ADA	7766 / 215	**1.52 (1.08; 2.14)**	0	0.000	na
Stroke (in patients with history of stroke/TIA)	Pan 2019[112]	3	IFG / IGT	ADA /WHO	8865 / na	1.45 (0.98; 2.14)	42	0.051	0.03; 65.75
Stroke (in patients with history of stroke/TIA)	Pan 2019[112]	2	IFG	WHO	6022 / na	1.17 (0.55; 2.48)	64.6	0.203	na
Poor outcome of stroke (in patients with history of stroke/TIA)[b]	Pan 2019[112]	5	IFG / IGT/ HbA_{1c}	ADA /WHO	7045 / na	**1.41 (1.01; 1.97)**	56	0.044	0.50; 3.95
Poor outcome of stroke (in patients with history of stroke/TIA)[b]	Pan 2019[112]	2	IFG	WHO	6022 / na	**1.41 (1.05; 1.90)**	29.9	0.014	na
Stroke mortality (in patients with history of stroke/TIA)	Pan 2019[112]	4	IFG/IGT	ADA/ WHO	6850 / na	1.40 (0.68; 2.91)	65	0.340	0.07; 27.52
Stroke mortality (in patients with history of stroke/TIA)	Pan 2019[112]	2	IFG	WHO	6022 / na	1.64 (0.67; 4.01)	37.5	0.180	na
Stroke mortality (in patients with history of stroke/TIA)	Pan 2019[112]	2	HbA_{1c}	ADA	828 / na	1.28 (0.30; 5.51)	81.4	0.917	na
MACE (in patients after PCI)	Zhao 2020[120]	10	IFG/IGT/ HbA_{1c}	ADA/WHO	6272 / na	**1.41 (1.14; 1.75)**	30.8	0.035	0.86; 2.32
MACE (in patients after PCI)	Zhao 2020[120]	2	IGT	ADA/WHO	461 / na	**1.62 (1.07; 2.46)**	0	0.000	na
MACE (in patients after PCI)	Zhao 2020[120]	3	HbA1c	ADA	3352 / na	1.38 (0.88; 2.17)	63	0.099	0.01; 196.94
Microvascular outcomes									
Chronic kidney disease	Echouffo-Tcheugui 2016[121]	8	IFG	ADA/WHO	170’081 / 15’259	**1.10 (1.01; 1.20)**	80.4	0.007	0.88; 1.39
Chronic kidney disease	Echouffo-Tcheugui 2016[121]	6	IFG	WHO	57’759 / 2445	**1.25 (1.02; 1.53)**	83.2	0.048	0.63; 2.45
Chronic kidney disease	Mutie 2020[122]	4	IFG	ADA	137’483 / na	0.97 (0.94; 1.01)	0	0.000	0.89; 1.06
Chronic kidney disease	Mutie 2020[122]	3	HbA_{1c}	ADA	19834 / na	1.07 (0.94; 1.21)	0	0.000	0.48; 2.38

Cancer									
Total cancer	Huang 2014[123]	5	IFG	ADA/WHO	87’916 / na	1.13 (1.00; 1.28)	20.8	0.004	0.85; 1.51
Total cancer	Huang 2014[123]	4	IFG	WHO	85’478 / na	**1.11 (1.01; 1.22)**	0	0.000	0.90; 1.37
Total cancer	Huang 2014[123]	6	IGT	ADA/WHO	82’296 / na	**1.25 (1.02; 1.53)**	39.5	0.024	0.74; 2.09
Total cancer	Huang 2014[123]	2	IFG / IGT	WHO	46’121 / na	**1.11 (1.02; 1.21)**	0	0.000	na
Stomach/colorectal cancer	Huang 2014[123]	3	IFG / IGT	ADA/ WHO	52’113 / na	**1.55 (1.15; 2.09)**	59.7	0.041	0.06; 39.06
Liver cancer	Huang 2014[123]	3	IFG / IGT	ADA/WHO	53’971 / na	**2.01 (1.45; 2.79)**	0	0.000	0.24; 16.69
Hepatocellular carcinoma	Xu 2017[124]	5	IFG / IGT	ADA/WHO	1’366’784 / na	**1.44 (1.09; 1.90)**	40.8	0.038	0.67; 3.10
Hepatocellular carcinoma	Xu 2017[124]	3	IFG	ADA	1’303’726 / na	**1.23 (1.03; 1.47)**	14.8	0.009	0.23; 6.47
Bronchus and lung cancer	Huang 2014[123]	2	IFG / IGT	ADA/WHO	47’093 / na	1.35 (0.86; 2.11)	74.0	0.079	na
Prostate cancer	Huang 2014[123]	3	IFG / IGT	ADA/ WHO	104’426 / na	1.19 (0.86; 1.65)	48.4	0.040	0.04; 32.97
Kidney or bladder cancer	Huang 2014[123]	2	IFG / IGT	ADA/ WHO	99’406 / na	0.80 (0.55; 1.16)	0	0.000	na
Breast cancer	Huang 2014[123]	4	IFG / IGT	ADA/WHO	288’306 / na	**1.19 (1.03; 1.38)**	0	0.000	0.86; 1.64
Breast cancer	Huang 2014[123]	2	IFG	WHO	235’757 / na	1.13 (0.95; 1.35)	0	0.000	na
Pancreatic cancer	Fu 2016[125]	5	IFG / IGT	ADA/WHO	1’809’891 / na	**1.22 (1.11; 1.34)**	0	0.000	1.05; 1.35
Pancreatic cancer	Fu 2016[125]	3	IFG	ADA	1’747’230 / na	**1.25 (1.12, 1.39)**	17.6	0.002	0.50; 3.10
Mental/cognitive outcomes									
Depressive symptoms	Tong 2016[126]	4	IFG/IGT/ HbA_{1c}	ADA/WHO	14’660 / na	1.07 (0.80; 1.43)	73.1	0.056	0.32; 3.53
Depressive symptoms	Tong 2016[126]	2	IFG	ADA	10’128 / na	0.91 (0.67; 1.23)	70.2	0.033	na
All-cause dementia[c]	Xue 2019[113]	9	IFG/IGT	na	na / na	**1.18 (1.02; 1.36)**	22	na	na
All-cause dementia[c]	Xue 2019[113]	?	IFG	5.6-6.9	na / na	**1.27 (1.08; 1.49)**	0	na	na

All-cause dementia[c]	Xue 2019[113]	?	IGT	na	na / na	**1.40 (1.03; 1.91)**		na	na
Alzheimer's dementia[c]	Xue 2019[113]	5	IFG / IGT	na	na / na	**1.36 (1.09; 1.70)**	14.0	na	na
Vascular dementia[c]	Xue 2019[113]	3	IFG / IGT	na	na / na	**1.47 (1.01; 2.15)**	0	na	na
Cognitive impairment[c]	Xue 2019[113]	5	IFG / IGT	na	na / na	0.96 (0.85; 1.09)	0	na	na

na, not available; PI, prediction interval.

[a] total number of participants / cases as extracted from the meta-analyses, might include individuals with diabetes, because number of participants / cases was not always available for the prediabetes subgroup only

[b] poor outcomes defined as degree of disability or dependence in the daily activities of people who have suffered a stroke or other causes of neurological disability

[c] could not be recalculated because of missing information.

Boldface shows summary associations with precise 95% CIs, excluding the null value.

ESM Table 5: Important confounders considered in each primary study included in the meta-analyses

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
All-cause mortality: IFG-ADA												
Yeboah, 2011	✓	✓	✓		✓	✓			✓	✓		
Deedwania, 2013	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ankle arm index ratio, haemoglobin, albumin, uric acid, serum insulin, LV hypertrophy, atrial fibrillation, bundle branch block, CRP
Samaras, 2015	✓	✓			✓	✓			✓			
Jin, 2008	✓	✓			✓				✓	✓	✓	
Laukkanen, 2013	✓	✓			✓	✓		✓	✓	✓	✓	family history of CHD
Kim, 2016	✓	✓			✓	✓			✓	✓		family history of CVD
Rijkelijkhuizen, 2007	✓	✓										
Tang, 2019	✓	✓	✓	✓								family history of diabetes
Lu, 2019	✓	✓		✓	✓	✓	✓	✓	✓	✓		family history of diabetes
Wen, 2005	✓	✓			✓	✓			✓	✓		
de Abreu, 2017	✓	✓				✓						
Parizadeh, 2019	✓			✓	✓	✓			✓	✓	✓	family history of diabetes, eGFR
Rhee, 2020	✓	✓			✓	✓	✓	✓	✓	✓	✓	
Jiang, 2020	✓	✓		✓	✓	✓			✓	✓	✓	
Lazo-Porras, 2020	✓	✓		✓	✓	✓	✓	✓	✓	✓		population group
Kim, 2017	✓	✓		✓	✓	✓	✓	✓	✓	✓		antithrombotics
Mongraw-Chaffin, 2017	✓	✓	✓	✓	✓	✓			✓	✓		diabetes treatment

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Shi, 2016	✓	✓		✓	✓	✓	✓	✓	✓			intake of energy, fat and fibre
All-cause mortality: IFG-WHO												
Lu, 2003	✓	✓			✓	✓	✓	✓	✓	✓		study center
Nakagami, 2004	✓	✓			✓	✓			✓	✓		cohort
Hunt, 2004	✓	✓	✓									
Magliano, 2010		✓		✓	✓	✓			✓	✓	✓	
Saydah, 2001	✓	✓	✓	✓	✓	✓	✓		✓	✓		
DECODE, 2001	✓	✓			✓	✓			✓	✓		center
Rodriguez, 2002	✓	✓			✓		✓		✓	✓		fibrinogen
Tsai, 2008	✓	✓				✓						
Wild, 2005	✓	✓				✓			✓	✓	✓	
Samaras, 2015	✓	✓			✓	✓			✓			
Henry, 2002	✓	✓			✓	✓			✓	✓		
Barr, 2007	✓	✓			✓	✓			✓	✓	✓	
Rijkelijkhuizen, 2007	✓	✓										
Wändell, 2005	✓	✓			✓				✓			
Parizadeh, 2019	✓			✓	✓	✓			✓	✓	✓	family history of diabetes, eGFR
Lu, 2019	✓	✓		✓	✓	✓	✓	✓	✓	✓		family history of diabetes
Jiang, 2020	✓	✓		✓	✓	✓			✓	✓	✓	

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Warren, 2017	✓	✓	✓	✓	✓	✓		✓	✓	✓		family history of diabetes, eGFR
Wen, 2005	✓	✓			✓	✓			✓	✓		
All-cause mortality: IGT- ADA/WHO												
Saydah, 2001	✓	✓	✓	✓	✓	✓	✓		✓	✓		
Hiltunen, 2005	✓	✓			✓	✓	✓		✓		✓	self-perceived health
Rodriguez, 2002	✓	✓			✓		✓		✓	✓		fibrinogen
Wild, 2005	✓	✓				✓			✓	✓	✓	
Stengard, 1992	✓	✓			✓	✓			✓	✓		functional capacity
Magliano, 2010		✓		✓	✓	✓			✓	✓	✓	
Nakagami, 2004	✓	✓			✓	✓			✓	✓		cohort
Barr, 2007	✓	✓			✓	✓			✓	✓	✓	
DECODE, 2001	✓	✓			✓	✓			✓	✓		center
Kokubo, 2010	✓	✓			✓	✓		✓	✓	✓		
Lu, 2019	✓	✓		✓	✓	✓	✓	✓	✓	✓		family history of diabetes
Jiang, 2020	✓	✓		✓	✓	✓			✓	✓	✓	
Warren, 2017	✓	✓	✓	✓	✓	✓		✓	✓	✓		family history of diabetes, eGFR
Parizadeh, 2019	✓			✓	✓	✓			✓	✓	✓	family history of diabetes, eGFR
Fang, 2019	✓	✓			✓	✓			✓	✓	✓	insulin resistance, eGFR
All-cause mortality: HbA1c-ADA												

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Gordon-Dseagu, 2015	✓	✓		✓	✓	✓						
Paprott, 2015	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	
Kim, 2016	✓	✓			✓	✓			✓	✓		family history of CVD
Jiang, 2020	✓	✓		✓	✓	✓			✓	✓	✓	
Lu, 2019	✓	✓		✓	✓	✓	✓	✓	✓	✓		family history of diabetes
Tang, 2019	✓	✓	✓	✓								family history of diabetes
Lazo-Porras, 2020	✓	✓		✓	✓	✓	✓	✓	✓	✓		population group
All-cause mortality: IGT/IFG - ADA												
Hadaegh, 2015	✓	✓			✓	✓			✓	✓		
Valdes, 2009	✓	✓			✓	✓			✓	✓	✓	
All-cause mortality: IGT/IFG - WHO												
Saydah, 2001	✓	✓	✓	✓	✓	✓	✓		✓	✓		
Rodriguez, 2002	✓	✓			✓		✓		✓	✓		fibrinogen
Kowall, 2011	✓	✓			✓	✓	✓	✓	✓	✓	✓	parental diabetes
Evans, 2015	✓	✓		✓								
Hu, 2003	✓	✓			✓	✓			✓	✓		center
Nakagami, 2004	✓	✓			✓	✓			✓	✓		cohort
Ma, 2003	✓	✓		✓	✓	✓		✓	✓			
Valdes, 2009	✓	✓			✓	✓			✓	✓	✓	

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
All-cause mortality: IGF/HbA1c-ADA												
Tang, 2019	✓	✓	✓	✓								family history of diabetes
Hubbard, 2019	✓	✓		✓	✓	✓	✓			✓	✓	aspirin use
Rhee, 2016	✓	✓			✓	✓	✓	✓	✓		✓	study center, year of screening examination, family history of diabetes
Kim, 2016	✓	✓			✓	✓			✓	✓		family history of CVD
Long-term all-cause mortality (in patients after PCI): HbA1c-ADA												
Naito, 2014	✓				✓					✓		LVEF, haemoglobin, eGFR, multivessel disease
Shin, 2016	✓	✓			✓					✓		LVEF, Killip class, troponin I
Aggarwal, 2016	✓	✓										
Short-term all-cause mortality (in patients after PCI): HbA1c-ADA												
Aggarwal, 2016	✓	✓										
Shin, 2016	✓	✓			✓					✓		LVEF, Killip class, troponin I
All-cause mortality (in patients with atherosclerotic cardiovascular disease): IFG-ADA												
Janszky, 2009	✓	✓		✓	✓		✓		✓	✓	✓	apo B／apo A ratio, Q wave infarction and education
Silbernagel, 2011	✓	✓			✓	✓			✓	✓	✓	eGFR, Friesinger score, glycated hemoglobin
Ding, 2014	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	marriage, glomerular filtration rate, antiplatelet drugs
Slezak, 2018	✓	✓			✓	✓			✓	✓		survey
Fefer, 2008	✓	✓									✓	Killip class, LVEF
All-cause mortality (in patients with atherosclerotic cardiovascular disease): IFG-WHO												
Fisman, 2001	✓	✓			✓	✓				✓	✓	functional class, peripheral vascular disease, anginal syndrome

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Muhlestein, 2003	✓	✓				✓			✓	✓	✓	type of PCI, LVEF, family history, glycemic status
Nigam, 2007	✓	✓			✓	✓			✓	✓	✓	
Giraldez, 2013	✓	✓			✓	✓			✓		✓	ST-segment changes on qualifying event ECG, white blood cell count, Killip class, creatinine clearance, heart rate, positive baseline troponin,
Kiviniemi, 2019	✓	✓			✓				✓			grading for angina pectoris, SYNTAX Score, and LVEF
All-cause mortality (in patients with atherosclerotic cardiovascular disease): IGT-ADA/WHO												
Ding, 2014	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	marriage, glomerular filtration rate, antiplatelet drugs
George, 2015	✓	✓				✓			✓	✓	✓	discharge diagnosis
Kiviniemi, 2019	✓	✓			✓				✓			grading for angina pectoris, SYNTAX Score, and LVEF
All-cause mortality (in patients with atherosclerotic cardiovascular disease): HbA1c-ADA												
Shin, 2016	✓	✓			✓	✓			✓	✓	✓	Killip class, LVEF, peak troponin I, serum creatinine, peak creatine kinase 2 isoenzyme, treated vessel, lesion type, PCI, CRP
Choi, 2018	✓	✓				✓			✓	✓	✓	bifurcation Lesion
All-cause mortality (in patients with atherosclerotic cardiovascular disease): IFG/IGT-ADA												
Hofsten, 2009	✓	✓									✓	Killip class II, LVEF, E/e=, EDT 140 ms, left atrial volume index>32 ml/m², NT-proBNP
Ding, 2014	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	marriage, glomerular filtration rate, antiplatelet drugs
All-cause mortality (in patients with atherosclerotic cardiovascular disease): IFG/IGT-WHO												
Lenzen, 2006	✓	✓								✓	✓	
Pararajasingam, 2016	✓	✓			✓	✓			✓	✓	✓	wall motion score index, PCI at admission, CABG at admission, PCI and CABG at admission, only reperfusion therapy at admission, CABG during follow-up, PCI during follow-up

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Pararajasingam, 2019	✓	✓										type of MI
CV events: IFG-ADA												
Khang, 2010	✓	✓			✓				✓	✓		
Deedwania, 2013	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ankle arm index ratio, haemoglobin, albumin, uric acid, serum insulin, LV hypertrophy, atrial fibrillation, bundle branch block, CRP
Kim, 2013	✓				✓	✓			✓	✓		family history of CVD
Ma, 2012	✓	✓		✓	✓			✓	✓			
Kim, 2016	✓	✓			✓	✓			✓	✓		family history of CVD
Schöttker, 2013	✓	✓				✓			✓	✓		
Yeboah, 2011	✓	✓	✓		✓	✓			✓	✓		
Levitzky, 2008	✓	✓			✓	✓			✓	✓		
Kokubo, 2010	✓	✓			✓	✓		✓	✓	✓		
Wang, 2007a	✓	✓				✓	✓	✓		✓	✓	
Liu, 2007	✓	✓				✓				✓		CVD family history
Rijkelijkhuizen, 2007	✓	✓										
Laukkanen, 2013	✓	✓			✓	✓		✓	✓	✓	✓	family history of CHD
Jin, 2008	✓	✓			✓				✓	✓	✓	
Tang, 2019	✓	✓	✓	✓								family history of diabetes
Vistisen, 2018	✓	✓	✓			✓			✓	✓	✓	
Lu, 2019	✓	✓		✓	✓	✓	✓	✓	✓	✓		family history of diabetes

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Kim, 2017	✓	✓		✓	✓	✓	✓	✓	✓	✓		antithrombotics
Jiang, 2020	✓	✓		✓	✓	✓			✓	✓	✓	
Mongraw-Chaffin, 2017	✓	✓	✓	✓	✓	✓			✓	✓		diabetes treatment
Wen, 2005	✓	✓			✓	✓			✓	✓		
Shi, 2016	✓	✓		✓	✓	✓	✓	✓	✓			intake of energy, fat and fibre
CV events: IFG-WHO												
Saydah, 2001	✓	✓	✓	✓	✓	✓	✓		✓	✓		
Lu, 2003	✓	✓			✓	✓	✓	✓	✓	✓		study center
Rodriguez, 2002	✓	✓			✓		✓		✓	✓		fibrinogen
Oizumi, 2008	✓	✓							✓			
Nakagami, 2004	✓	✓			✓	✓			✓	✓		cohort
Magliano, 2010		✓		✓	✓	✓			✓	✓	✓	
Wild, 2005	✓	✓				✓			✓	✓	✓	
DECODE, 2001	✓	✓			✓	✓			✓	✓		center
Nakanishi, 2004	✓	✓			✓	✓		✓	✓	✓		family history of T2D
Wang, 2007a	✓	✓				✓	✓	✓		✓	✓	
Barzilay, 1999	✓	✓	✓		✓	✓			✓	✓		
Nilsson, 2007	✓	✓										
Tsai, 2008	✓	✓				✓						

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Henry, 2002	✓	✓			✓	✓			✓	✓		
Hunt, 2004	✓	✓	✓									
Chien, 2008	✓	✓		✓	✓	✓	✓	✓				family history of CHD
Rijkelijkhuizen, 2007	✓	✓										
Barr, 2007	✓	✓			✓	✓			✓	✓	✓	
Wändell, 2005	✓	✓			✓				✓			
Vistisen, 2018	✓	✓	✓			✓			✓	✓	✓	
Warren, 2017	✓	✓	✓	✓	✓	✓		✓	✓	✓		family history of diabetes, eGFR
Lu, 2019	✓	✓		✓	✓	✓	✓	✓	✓	✓		family history of diabetes
Jiang, 2020	✓	✓		✓	✓	✓			✓	✓	✓	
Wen, 2005	✓	✓			✓	✓			✓	✓		
Onat, 2005	✓	✓				✓	✓					
CV events: IGT-WHO/ADA												
Saydah, 2001	✓	✓	✓	✓	✓	✓	✓		✓	✓		
Rodriguez, 2002	✓	✓			✓		✓		✓	✓		fibrinogen
Stengard, 1992	✓	✓			✓	✓			✓	✓		functional capacity
Wild, 2005	✓	✓				✓			✓	✓	✓	
Barr, 2007	✓	✓			✓	✓			✓	✓	✓	
Chien, 2008	✓	✓		✓	✓	✓	✓	✓				family history of CHD

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Barzilay, 1999	✓	✓	✓		✓	✓			✓	✓		
Magliano, 2010		✓		✓	✓	✓			✓	✓	✓	
Nakagami, 2004	✓	✓			✓	✓			✓	✓		cohort
DECODE, 2001	✓	✓			✓	✓			✓	✓		center
Oizumi, 2008	✓	✓							✓			
Wang, 2007a	✓	✓				✓	✓	✓		✓	✓	
Tai, 2004	✓	✓	✓									
Vistisen, 2018	✓	✓	✓			✓			✓	✓	✓	
Warren, 2017	✓	✓	✓	✓	✓	✓		✓	✓	✓		family history of diabetes, eGFR
Lu, 2019	✓	✓		✓	✓	✓	✓	✓	✓	✓		family history of diabetes
Jiang, 2020	✓	✓		✓	✓	✓			✓	✓	✓	
Cederberg, 2010		✓			✓	✓			✓	✓		family history of diabetes
Fang, 2019	✓	✓			✓	✓			✓	✓	✓	insulin resistance, eGFR
CV events: HbA1c-ADA												
Schöttker, 2013	✓	✓				✓			✓	✓		
Gordon-Dseagu, 2015	✓	✓		✓	✓	✓						
Kim, 2016	✓	✓			✓	✓			✓	✓		family history of CVD
Eastwood, 2015	✓	✓			✓	✓			✓	✓		
Jiang, 2020	✓	✓		✓	✓	✓			✓	✓	✓	

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Lu, 2019	✓	✓		✓	✓	✓	✓	✓	✓	✓		family history of diabetes
Tang, 2019	✓	✓	✓	✓								family history of diabetes
Vistisen, 2018	✓	✓	✓			✓			✓	✓	✓	
CV events: IFG/IGT-ADA												
Hadaegh, 2015	✓	✓			✓	✓			✓	✓		
Tian, 2018	✓	✓			✓	✓	✓	✓	✓			family history of diabetes
CV events: IFG/IGT-WHO												
Saydah, 2001	✓	✓	✓	✓	✓	✓	✓		✓	✓		
Rodriguez, 2002	✓	✓			✓		✓		✓	✓		fibrinogen
Kowall, 2011	✓	✓			✓	✓	✓	✓	✓	✓	✓	parental diabetes
Evans, 2015	✓	✓		✓								
Hu, 2003	✓	✓			✓	✓			✓	✓		center
Nakagami, 2004	✓	✓			✓	✓			✓	✓		cohort
Eastwood, 2015	✓	✓			✓	✓			✓	✓		
CV events: IFG/HbA1c-ADA												
Tang, 2019	✓	✓	✓	✓								family history of diabetes
Hubbard, 2019	✓	✓		✓	✓	✓	✓			✓	✓	aspirin use
Rhee, 2016	✓	✓			✓	✓	✓	✓	✓		✓	study center, year of screening examination, family history of diabetes
Kim, 2016	✓	✓			✓	✓			✓	✓		family history of CVD

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Schöttker, 2013	✓	✓				✓			✓	✓		
Vistisen, 2018	✓	✓	✓			✓			✓	✓	✓	
CV events: IFG/HbA1c/IGT-ADA												
Wang, 2019	✓	✓		✓							✓	family history of diabetes
Ares, 2019	✓	✓			✓	✓			✓	✓	✓	eGFR
CV events (in patients with atherosclerotic cardiovascular disease): IFG-ADA												
Kanaya, 2005	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	overall health status, angiotensin-converting enzyme inhibitor and hormone therapy
Donahue, 2011	✓				✓	✓		✓	✓	✓	✓	
Janszky, 2009	✓	✓		✓	✓		✓		✓	✓	✓	apo B/apo A ratio, Q wave infarction and education
Silbernagel, 2011	✓	✓			✓	✓			✓	✓	✓	eGFR, Friesinger score, glycated hemoglobin
Ding, 2014	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	marriage, glomerular filtration rate, antiplatelet drugs
Slezak, 2018	✓	✓			✓	✓			✓	✓		survey
CV events (in patients with atherosclerotic cardiovascular disease): IFG-WHO												
Kiviniemi, 2019	✓	✓			✓				✓			grading for angina pectoris, SYNTAX Score, and LVEF
Shahim, 2017	✓	✓		✓	✓	✓	✓		✓	✓		HADS anxiety and depression score
Nigam, 2007	✓	✓			✓	✓			✓	✓	✓	
Tamita, 2012	✓								✓	✓	✓	Previous surgery, HbA1c, piuretics,
Held, 2005	✓					✓			✓	✓	✓	
CV events (in patients with atherosclerotic cardiovascular disease): IGT-ADA/WHO												

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Kiviniemi, 2019	✓	✓			✓				✓			grading for angina pectoris, SYNTAX Score, and LVEF
Shahim, 2017	✓	✓		✓	✓	✓	✓		✓	✓		HADS anxiety and depression score
George, 2015	✓	✓				✓			✓	✓	✓	discharge diagnosis
Ding, 2014	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	marriage, glomerular filtration rate, antiplatelet drugs
Von Birgelen, 2018	✓	✓								✓	✓	
Tamita, 2012	✓								✓	✓	✓	Previous surgery, HbA1c, piuretics,
CV events (in patients with atherosclerotic cardiovascular disease): HbA1c-ADA												
Shin, 2016	✓	✓			✓	✓			✓	✓	✓	Killip class, LVEF, peak troponin I, serum creatinine, peak creatine kinase 2 isoenzyme, treated vessel, lesion type, PCI, CRP
Shahim, 2017	✓	✓		✓	✓	✓	✓		✓	✓		HADS anxiety and depression score
Wang, 2020	✓	✓			✓				✓	✓	✓	creatinine clearance rate
Choi, 2018	✓	✓				✓			✓	✓	✓	bifurcation Lesion
CV events (in patients with atherosclerotic cardiovascular disease): IFG/HbA1c-ADA												
Farhan, 2019	✓	✓									✓	minimal luminal area, prior PCI
Kim, 2020	✓	✓			✓	✓			✓	✓	✓	PCI, CABG, CK-MB, NT-ProBNP, creatinine, eGFR, medicine, vessel disease, stent
CV events (in patients with atherosclerotic cardiovascular disease): IFG/HbA1c/IGT-ADA												
Jin, 2019	✓	✓			✓	✓			✓	✓	✓	family history of CAD, gensini score, LVEF, creatinine, NT-proBNP, big ET-1, fifibrinogen
Bjarnason, 2019	✓	✓			✓	✓			✓		✓	
CV mortality: IFG-ADA												

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
No information in the paper/meta-analysis which studies and confounders were included; no access to the supplement and authors did not reply to e-mail request												
CV mortality: IFG-WHO												
No information in the paper/meta-analysis which studies and confounders were included; no access to the supplement and authors did not reply to e-mail request												
CV mortality: IGT-ADA/WHO												
No information in the paper/meta-analysis which studies and confounders were included; no access to the supplement and authors did not reply to e-mail request												
CVD incidence: IFG-ADA												
No information in the paper/meta-analysis which studies and confounders were included; no access to the supplement and authors did not reply to e-mail request												
CVD incidence: IFG-WHO												
No information in the paper/meta-analysis which studies and confounders were included; no access to the supplement and authors did not reply to e-mail request												
CVD incidence: IGT-ADA/WHO												
No information in the paper/meta-analysis which studies and confounders were included; no access to the supplement and authors did not reply to e-mail request												
CHD: IFG-ADA												
Doi, 2010	✓	✓			✓	✓	✓	✓	✓	✓		electrocardiogram abnormalities
Kim, 2016	✓	✓			✓	✓			✓	✓		family history of CVD
Ma, 2012	✓	✓		✓	✓			✓	✓			
Kim, 2008	✓	✓										
Deedwania, 2013	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ankle arm index ratio, haemoglobin, albumin, uric acid, serum insulin, LV hypertrophy, atrial fibrillation, bundle branch block, CRP
Yeboah, 2011	✓	✓	✓		✓	✓			✓	✓		
Kim, 2013	✓				✓	✓			✓	✓		family history of CVD

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Wang, 2007	✓	✓		✓		✓				✓		family history of diabetes
Samaras, 2015	✓	✓			✓	✓			✓			
Selvin, 2013	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		family history of diabetes
McNeill, 2006	✓	✓	✓									
Levitzky, 2008	✓	✓			✓	✓			✓	✓		
Khang, 2010	✓	✓			✓				✓	✓		
Tai, 2004	✓	✓	✓									
Liu, 2007	✓	✓				✓				✓		CVD family history
Kokubo, 2010	✓	✓			✓	✓		✓	✓	✓		
Mathenge, 2020	✓	✓	✓	✓	✓	✓	✓		✓	✓		aspirin use, cognitive function
Parizadeh, 2019	✓			✓	✓	✓			✓	✓	✓	family history of diabetes, eGFR
Kim, 2017	✓	✓		✓	✓	✓	✓	✓	✓	✓		antithrombotics
Ahn, 2018	✓				✓	✓			✓	✓		
Mongraw-Chaffin, 2017	✓	✓	✓	✓	✓	✓			✓	✓		diabetes treatment
Saito, 2011	✓	✓			✓	✓	✓	✓	✓	✓		community
CHD: IFG-WHO												
Oizumi, 2008	✓	✓							✓			
Doi, 2010	✓	✓			✓	✓	✓	✓	✓	✓		electrocardiogram abnormalities
Onat, 2013	✓	✓			✓	✓			✓	✓		CRP

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Palmieri, 2006	✓	✓										center
DECODE, 2001	✓	✓			✓	✓			✓	✓		center
McNeill, 2005	✓	✓			✓	✓	✓		✓		✓	self-reported health
Wannamethee, 2008	✓	✓		✓		✓	✓	✓				
Wang, 2007	✓	✓		✓		✓				✓		family history of diabetes
Levitzky, 2008	✓	✓			✓	✓			✓	✓		
McNeill, 2006	✓	✓	✓									
Parizadeh, 2019	✓			✓	✓	✓			✓	✓	✓	family history of diabetes, eGFR
Brunner, 2010	✓	✓										
CHD: IGT-ADA/WHO												
Pankow, 2007	✓	✓	✓		✓	✓			✓	✓		
Doi, 2010	✓	✓			✓	✓	✓	✓	✓	✓		electrocardiogram abnormalities
Wang, 2007	✓	✓		✓		✓				✓		family history of diabetes
Oizumi, 2008	✓	✓							✓			
DECODE, 2001	✓	✓			✓	✓			✓	✓		center
Kim, 2008	✓	✓										
Tai, 2004	✓	✓	✓									
Onat, 2013	✓	✓			✓	✓			✓	✓		CRP
Fang, 2019	✓	✓			✓	✓			✓	✓	✓	insulin resistance, eGFR

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Parizadeh, 2019	✓			✓	✓	✓			✓	✓	✓	family history of diabetes, eGFR
Smith, 2002	✓	✓	✓									
CHD: HbA1c-ADA												
Eastwood, 2015	✓	✓			✓	✓			✓	✓		
Kim, 2016	✓	✓			✓	✓			✓	✓		family history of CVD
Selvin, 2013	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		family history of diabetes
CHD: IFG/IGT-WHO												
Eastwood, 2015	✓	✓			✓	✓			✓	✓		
Wang, 2007	✓	✓		✓		✓				✓		family history of diabetes
Madssen, 2012	✓	✓			✓	✓	✓		✓		✓	
Doi, 2010	✓	✓			✓	✓	✓	✓	✓	✓		electrocardiogram abnormalities
Bonora, 2003	✓	✓		✓		✓	✓	✓		✓	✓	
CHD: IFG/HbA1c-ADA												
Kim, 2016	✓	✓			✓	✓			✓	✓		family history of CVD
Hubbard, 2019	✓	✓		✓	✓	✓	✓			✓	✓	aspirin use
CHD (in patients with atherosclerotic cardiovascular disease): IFG-ADA												
Kanaya, 2005	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	overall health status, angiotensin-converting enzyme inhibitor and hormone therapy
Janszky, 2009	✓	✓		✓	✓		✓		✓	✓	✓	apo B／apo A ratio, Q wave infarction and education
CHD (in patients with atherosclerotic cardiovascular disease): IFG-WHO												

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Kiviniemi, 2019	✓	✓			✓				✓			grading for angina pectoris, SYNTAX Score, and LVEF
Fisman, 2001	✓	✓			✓	✓				✓	✓	functional class, peripheral vascular disease, anginal syndrome
CHD (in patients with atherosclerotic cardiovascular disease): IGT-ADA/WHO												
Kiviniemi, 2019	✓	✓			✓				✓			grading for angina pectoris, SYNTAX Score, and LVEF
George, 2015	✓	✓				✓			✓	✓	✓	discharge diagnosis
Von Birgelen, 2018	✓	✓								✓	✓	
CHD (in patients with atherosclerotic cardiovascular disease): HbA1c-ADA												
Shin, 2016	✓	✓			✓	✓			✓	✓	✓	Killip class, LVEF, peak troponin I, serum creatinine, peak creatine kinase 2 isoenzyme, treated vessel, lesion type, PCI, CRP
Wang, 2020	✓	✓			✓				✓	✓	✓	creatinine clearance rate
Stroke: IFG-ADA												
Doi, 2010	✓	✓			✓	✓	✓	✓	✓	✓		electrocardiogram abnormalities
Yeboah, 2011	✓	✓	✓		✓	✓			✓	✓		
Deedwania, 2013	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ankle arm index ratio, haemoglobin, albumin, uric acid, serum insulin, LV hypertrophy, atrial fibrillation, bundle branch block, CRP
Khang, 2010	✓	✓			✓				✓	✓		
Kim, 2016	✓	✓			✓	✓			✓	✓		family history of CVD
Kim, 2013	✓				✓	✓			✓	✓		family history of CVD
Ma, 2012	✓	✓		✓	✓			✓	✓			
Sung, 2009	✓	✓		✓	✓	✓	✓	✓	✓	✓		height, area of residence

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Kokubo, 2010	✓	✓			✓	✓		✓	✓	✓		
Liu, 2007	✓	✓				✓				✓		CVD family history
Samaras, 2015	✓	✓			✓	✓			✓			
Selvin, 2013	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		family history of diabetes
Kim, 2017	✓	✓		✓	✓	✓	✓	✓	✓	✓		antithrombotics
Mongraw-Chaffin, 2017	✓	✓	✓	✓	✓	✓			✓	✓		diabetes treatment
Wang, 2008	✓	✓			✓							
Parizadeh, 2019	✓			✓	✓	✓			✓	✓	✓	family history of diabetes, eGFR
Stroke: IFG-WHO												
Doi, 2010	✓	✓			✓	✓	✓	✓	✓	✓		electrocardiogram abnormalities
Oizumi, 2008	✓	✓							✓			
Sung, 2009	✓	✓		✓	✓	✓	✓	✓	✓	✓		height, area of residence
Hyvärinen, 2009	✓	✓			✓	✓			✓	✓		center
Sui, 2011	✓	✓			✓	✓		✓	✓	✓		family history of CVD, abnormal ECG
Mazza, 2001	✓					✓			✓		✓	atrial fibrillation, LV hypertrophy, uric acid, serum potassium, sodium
Wang, 2008	✓	✓			✓							
Parizadeh, 2019	✓			✓	✓	✓			✓	✓	✓	family history of diabetes, eGFR
Stroke: IGT-ADA/WHO												
Doi, 2010	✓	✓			✓	✓	✓	✓	✓	✓		electrocardiogram abnormalities

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Hyvärinen, 2009	✓	✓			✓	✓			✓	✓		center
Kaarisalo, 2006		✓				✓			✓		✓	Previous stroke/TIA, perceived health status, cardiac failure, atrial fibrillation, claudification, acetylsalisylic acid
Oizumi, 2008	✓	✓							✓			
Parizadeh, 2019	✓			✓	✓	✓			✓	✓	✓	family history of diabetes, eGFR
Smith, 2002	✓	✓	✓									
Wang, 2008	✓	✓			✓							
Fang, 2019	✓	✓			✓	✓			✓	✓	✓	insulin resistance, eGFR
Stroke: HbA1c-ADA												
Selvin, 2013	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		family history of diabetes
Wang, 2011	✓	✓				✓			✓	✓		log urinary albumin:creatinine ratio, baseline FBG levels
Birkenhager-Gillesse, 2015		✓		✓	✓	✓		✓	✓	✓	✓	living conditions, creatinine clearance, CRP
Goto, 2015	✓	✓			✓	✓	✓	✓	✓	✓		
Stroke: IFG/IGT-WHO												
Eastwood, 2015	✓	✓			✓	✓			✓	✓		
Zhang, 2008	✓	✓			✓	✓	✓	✓	✓	✓		micro- and macro-albuminuria
Stroke: IFG/HbA1c-ADA												
Kim, 2016	✓	✓			✓	✓			✓	✓		family history of CVD
Hubbard, 2019	✓	✓		✓	✓	✓	✓			✓	✓	aspirin use
Stroke (in patients with atherosclerotic cardiovascular disease): IFG-ADA												

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Kanaya, 2005	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	overall health status, angiotensin-converting enzyme inhibitor and hormone therapy
Janszky, 2009	✓	✓		✓	✓		✓		✓	✓	✓	apo B/apo A ratio, Q wave infarction and education
Atrial fibrillation: IFG-ADA/WHO												
Kokubo, 2017	✓	✓										
Lee, 2017	✓	✓				✓		✓			✓	
Huxley, 2011	✓	✓	✓	✓	✓	✓			✓			height
Atrial fibrillation: IFG-ADA												
Kokubo, 2017	✓	✓										
Lee, 2017	✓	✓				✓		✓			✓	
Huxley, 2011	✓	✓	✓	✓	✓	✓			✓			height
Heart failure: IFG-ADA												
Janszky, 2009	✓	✓		✓	✓		✓		✓	✓	✓	apo B/apo A ratio, Q wave infarction and education
Wang, 2010	✓	✓				✓	✓	✓	✓	✓	✓	
Nichols, 2009	✓	✓			✓	✓			✓	✓	✓	eGFR,
Mongraw-Chaffin, 2017	✓		✓	✓	✓	✓			✓	✓		
Deedwania, 2013	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ankle arm index ratio, haemoglobin, albumin, uric acid, serum insulin, LV hypertrophy, atrial fibrillation, bundle branch block, CRP
Kanaya, 2005	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	overall health status, angiotensin-converting enzyme inhibitor and hormone therapy
Held, 2007	✓	✓			✓	✓			✓	✓	✓	creatinine
Matsushita, 2010	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	eGFR, FPG, HbA1c

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Voulgari, 2011	✓	✓				✓	✓		✓	✓	✓	function on echocardiography
Rhee, 2020	✓	✓		✓		✓	✓	✓	✓	✓	✓	duration of diabetes
Heart failure: IFG-WHO												
Kanaya, 2005	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	overall health status, angiotensin-converting enzyme inhibitor and hormone therapy
Kiviniemi, 2019	✓	✓			✓				✓			grading for angina pectoris, SYNTAX Score, and LVEF
Matsushita, 2010	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	eGFR, FPG, HbA1c
Nichols, 2009	✓	✓			✓	✓			✓	✓	✓	eGFR,
Bibbins-Domingo, 2004	✓	✓			✓	✓			✓	✓	✓	creatinine clearance, left bundle-branch block
Wang, 2010	✓					✓	✓	✓	✓	✓	✓	
Heart failure: IGT-ADA/WHO												
Wang, 2010	✓					✓	✓	✓	✓	✓	✓	
Kiviniemi, 2019	✓	✓			✓				✓			grading for angina pectoris, SYNTAX Score, and LVEF
Fang, 2019	✓	✓			✓	✓			✓	✓	✓	insulin resistance, eGFR,
Sudden cardiac death: IFG/IGT-ADA												
Khosravi, 2017	✓	✓										
Laukkanen, 2013	✓	✓				✓		✓	✓	✓	✓	
Stroke (in pts with history of stroke/TIA): IFG/IGT-ADA/WHO												
Vermeer, 2006	✓	✓				✓			✓			minor ischaemic stroke in history
Pan, 2016	✓	✓				✓			✓	✓		history of IS, TIA, myocardial infarction, angina, congestive heart failure, known atrial fibrillation or flutter, valvular heart

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
												disease, NIHSS on admission, time to randomisation, antiplatelet drugs
Zhu, 2017	✓	✓				✓		✓	✓	✓		time from onset to hospitalization, ischemic stroke subtypes, baseline NIHSS score.
Stroke (in pts with history of stroke/TIA): IFG-WHO												
Pan, 2016	✓	✓				✓			✓	✓		history of IS, TIA, myocardial infarction, angina, congestive heart failure, known atrial fibrillation or flutter, valvular heart disease, NIHSS on admission, time to randomisation, antiplatelet drugs
Zhu, 2017	✓	✓				✓		✓	✓	✓		time from onset to hospitalisation, ischaemic stroke subtypes, baseline NIHSS score.
Poor outcome (defined as degree of disability or dependence in the daily activities of people who have suffered a stroke or other causes of neurological disability of stroke (in pts with history of stroke/TIA): IFG/IGT/HbA1c-ADA/WHO												
Tanaka, 2013	✓	✓			✓	✓			✓	✓		baseline NIHSS, stroke subtype, atrial fibrillation, thrombolytic therapy, admission blood glucose levels
Roquer, 2014	✓											NIHSS and previous mRS
Pan, 2016	✓	✓				✓			✓	✓		history of IS, TIA, myocardial infarction, angina, congestive heart failure, known atrial fibrillation or flutter, valvular heart disease, NIHSS on admission, time to randomization, antiplatelet drugs
Osei, 2016	✓	✓							✓			family history of T2D, NIHSS score on admission, atrial fibrillation, time from stroke onset to IAT,
Zhu, 2017	✓	✓				✓		✓	✓	✓		time from onset to hospitalization, ischemic stroke subtypes, baseline NIHSS score.
Poor outcome (defined as degree of disability or dependence in the daily activities of people who have suffered a stroke or other causes of neurological disability of stroke (in pts with history of stroke/TIA): IFG-WHO												
Pan, 2016	✓	✓				✓			✓	✓		history of IS, TIA, myocardial infarction, angina, congestive heart failure, known atrial fibrillation or flutter, valvular heart disease, NIHSS on admission, time to randomization, antiplatelet drugs
Zhu, 2017	✓	✓				✓		✓	✓	✓		time from onset to hospitalization, ischemic stroke subtypes, baseline NIHSS score.
Mortality of stroke (in pts with history of stroke/TIA): IFG/ IGT-ADA/WHO												

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Roquer, 2014	✓											NIHSS and previous mRS
Pan, 2016	✓	✓				✓			✓	✓		history of IS, TIA, myocardial infarction, angina, congestive heart failure, known atrial fibrillation or flutter, valvular heart disease, NIHSS on admission, time to randomization, antiplatelet drugs
Zhu, 2017	✓	✓				✓		✓	✓	✓		time from onset to hospitalisation, ischaemic stroke subtypes, baseline NIHSS score
Lorea, 2017	✓	✓										reason for admission, previous myocardial infarction, glucose, blood pressure in emergency, NIHSS
Mortality of stroke (in pts with history of stroke/TIA): IFG-WHO												
Pan, 2016	✓	✓				✓			✓	✓		history of IS, TIA, myocardial infarction, angina, congestive heart failure, known atrial fibrillation or flutter, valvular heart disease, NIHSS on admission, time to randomisation, antiplatelet drugs
Zhu, 2017	✓	✓				✓		✓	✓	✓		time from onset to hospitalization, ischemic stroke subtypes, baseline NIHSS score.
Mortality of stroke (in pts with history of stroke/TIA): HbA1c–ADA												
Roquer, 2014	✓											NIHSS and previous mRS
Lorea, 2017	✓	✓										reason for admission, previous myocardial infarction, glucose, blood pressure in emergency, NIHSS
Major adverse cardiac events: IFG/ IGT/HbA1c-ADA/WHO												
Porter, 2008	✓										✓	Killip Class, LVEF, renal function, anemia
Fefer, 2008	✓	✓							✓		✓	Killip Class, number of diseased vessels, LVEF
De la Hera, 2009	✓									✓		indication of PCI, three-vessel or LM-CAD, LVEF, treatment with drug-eluting stents and IIb/IIIa inhibitors
Knudsen, 2011	✓	✓			✓	✓			✓	✓	✓	Troponin T and infarct size expressed as percent of ventricular mass
Kuramitsu, 2013	✓	✓								✓	✓	

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Shin, 2016	✓	✓			✓					✓		LVEF, Killip class, troponin I
Samir, 2016	✓	✓			✓	✓			✓	✓		LVEF, Killip class, troponin I, coronary lesion features
Von Birgelen, 2018	✓	✓								✓	✓	previous revascularization
Choi, 2018	✓	✓			✓	✓			✓	✓	✓	multivessel CAD and LVEF
Farhan, 2019	✓	✓										presence of thin-cap fibroatheroma, presence of minimal luminal area <4 mm² and prior PCI
Major adverse cardiac events: IGT-ADA/WHO												
Kuramitsu, 2013	✓	✓								✓	✓	
Von Birgelen, 2018	✓	✓								✓	✓	previous revascularization
Major adverse cardiac events: HbA1c-ADA												
Shin, 2016	✓	✓			✓					✓		LVEF, Killip class, troponin I
Samir, 2016	✓	✓			✓	✓			✓	✓		LVEF, Killip class, troponin I, coronary lesion features
Choi, 2018	✓	✓			✓	✓			✓	✓	✓	multivessel CAD and LVEF
Chronic kidney disease: IFG-ADA/WHO												
Fox, 2005	✓	✓			✓	✓			✓	✓	✓	baseline GFR
Kurella, 2005	✓	✓	✓									
Lucove, 2008	✓	✓		.		✓						
Rashidi, 2007	Not reported											
Sun, 2010	✓	✓		.		✓						center
Ryu, 2009	✓	✓			✓				✓	✓		baseline eGFR, GGT, uric acid

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Wanatable, 2012	✓	✓										
Schöttker, 2013	✓	✓			✓	✓			✓	✓	✓	eGFR
Chronic kidney disease: IFG-WHO												
Kurella, 2005	✓	✓	✓									
Lucove, 2008	✓	✓		.		✓						
Rashidi, 2007	Not reported											
Ryu, 2009	✓	✓			✓				✓	✓		baseline eGFR, GGT, uric acid
Wanatabe, 2012	✓	✓							✓		✓	
Schöttker, 2013	✓	✓			✓	✓			✓	✓	✓	eGFR
Chronic kidney disease: IFG-ADA												
Schöttker, 2013	✓	✓			✓	✓			✓	✓	✓	eGFR
Sun, 2010	✓	✓				✓						center
Selvin, 2011	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		family history of diabetes, any ETDRS for retinopathy
Xing, 2014	✓	✓	✓		✓	✓			✓	✓		
Chronic kidney disease: HbA1c-ADA												
Xing, 2014	✓	✓	✓		✓	✓			✓	✓		
Selvin, 2011	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		family history of diabetes, any ETDRS for retinopathy
Schöttker, 2013	✓	✓			✓	✓			✓	✓	✓	eGFR
Total cancer: IFG-ADA/WHO												

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Hirakawa, 2012	✓	✓			✓	✓	✓	✓		✓		family history of cancer, dietary factors
Balkau, 2002	✓	✓			✓				✓	✓		
Harding, 2012	✓	✓		✓	✓	✓		✓	✓			
Lu, 2003	✓	✓			✓	✓	✓	✓	✓	✓		insulin
Stattin, 2007	✓					✓						year of recruitment, fasting time
Total cancer: IFG-WHO												
Balkau, 2002	✓	✓			✓				✓	✓		
Harding, 2012	✓	✓		✓	✓	✓		✓	✓			
Lu, 2003	✓	✓			✓	✓	✓	✓	✓	✓		insulin
Stattin, 2007	✓					✓						year of recruitment, fasting time
Total cancer: IGT-ADA/WHO												
Harding, 2012	✓	✓		✓	✓	✓		✓				
Hirakawa, 2012	✓	✓			✓	✓	✓	✓		✓		family history of cancer, dietary factors
Stengard, 1992	✓	✓			✓	✓			✓	✓		functional capacity
Saydah, 2003	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Stattin, 2007	✓					✓						year of recruitment, fasting time
Perseghin, 2012	✓	✓										
Total cancer: IFG/IGT-WHO												
Zhou, 2010	✓	✓			✓	✓			✓	✓		

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Kowall, 2011	✓	✓			✓	✓	✓	✓	✓	✓	✓	family history of T2D
Stomach/colorectal cancer: IFG/IGT-ADA/WHO												
Hirakawa, 2012	✓	✓			✓	✓	✓	✓		✓		family history of cancer, dietary factors
Parekh, 2013	✓	✓			✓	✓		✓				
Zhou, 2010	✓	✓			✓	✓			✓	✓		
Liver cancer: IFG/IGT-ADA/WHO												
Gwack, 2007	✓	✓			✓	✓		✓				hepatitis B surface antigen seropositivity
Hirakawa, 2012	✓	✓			✓	✓	✓	✓		✓		family history of cancer, dietary factors
Zhou, 2010	✓	✓			✓	✓			✓	✓		
Hepatocellular carcinoma: IFG/IGT-ADA/WHO												
Zhou, 2010	✓	✓			✓	✓			✓	✓		normal glucose tolerance
Batty, 2004	✓	✓			✓	✓	✓		✓	✓	✓	marital status, unexplained weight loss, triceps skinfold thickness, height adjusted FEV1
Hirakawa, 2012	✓	✓										
Chao, 2011	✓	✓				✓		✓				
Jee, 2005	✓	✓				✓		✓				first-degree family history of HCC, and baseline viral factors
Hepatocellular carcinoma: IFG-ADA												
Hirakawa, 2012	✓	✓										
Chao, 2011	✓	✓				✓		✓				

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Jee, 2005	✓	✓				✓		✓				first-degree family history of HCC, and baseline viral factors
Bronchus and lung cancer: IFG/IGT-ADA/WHO												
Hirakawa, 2012	✓	✓			✓	✓	✓	✓		✓		family history of cancer, dietary factors
Zhou, 2010	✓	✓			✓	✓			✓	✓		
Prostate cancer: IFG/IGT-ADA/WHO												
Chung, 2009	✓											
Parekh, 2013	✓	✓			✓	✓		✓				
Zhou, 2010	✓	✓			✓	✓			✓	✓		
Kidney and bladder cancer: IFG/IGT-ADA/WHO												
Chung, 2009	✓											
Zhou, 2010	✓	✓			✓	✓			✓	✓		
Breast cancer: IFG/IGT-ADA/WHO												
Lambe, 2011	✓											
Mink, 2002	✓	✓	✓		✓	✓		✓				age at menarche/menopause/first live birth, family history of breast cancer, number of sisters
Parekh, 2013	✓	✓			✓	✓		✓				
Zhou, 2010	✓	✓			✓	✓			✓	✓		
Breast cancer: IFG-WHO												
Lambe, 2011	✓											
Parekh, 2013	✓	✓			✓	✓		✓				

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
Pancreatic cancer: IFG/IGT-ADA/WHO												
Batty, 2004	✓			✓	✓		✓		✓	✓	✓	marital status, unexplained weight loss, triceps skin fold thickness, height adjusted forced expiratory volume in one second,
Jee, 2005	✓	✓				✓		✓				
Yun, 2006	✓	✓			✓		✓	✓				
Zhou, 2010	✓	✓			✓	✓			✓	✓		
Hirakawa, 2012	✓	✓			✓	✓	✓	✓		✓		family history of cancer, dietary factors
Pancreatic cancer: IFG-ADA												
Jee, 2005	✓	✓				✓		✓				
Yun, 2006	✓	✓			✓		✓	✓				
Hirakawa, 2012	✓	✓			✓	✓	✓	✓		✓		family history of cancer, dietary factors
Depressive symptoms: IFG/IGT/HbA1c-ADA/WHO												
Golden, 2008	✓	✓	✓	✓	✓							examination site
Pieper, 2011	✓	✓		✓	✓							distribution of primary care physicians
Demakakos, 2014	✓	✓		✓								baseline depressive symptoms, marital status
Okumiya, 2015	✓	✓										depressive tendency at baseline, dependence in activities of daily living
Depressive symptoms: IFG-ADA												
Golden, 2008	✓	✓	✓	✓	✓							examination site
Pieper, 2011	✓	✓		✓	✓							distribution of primary care physicians

	Confounders											
	Age	**Sex**	**Ethnicity[a]**	**Education/income**	**BMI/ waist**	**Smoking**	**Physical activity**	**Alcohol intake**	**Blood pressure/ treatment**	**Blood lipids/ treatment**	**Chronic diseases**	**Further confounders**
All-cause dementia: IFG/IGT-ADA/WHO												
No information in the paper/meta-analysis which studies and confounders were included; no access to the supplement and authors did not reply to e-mail request												
All-cause dementia: IFG												
No information in the paper/meta-analysis which studies and confounders were included; no access to the supplement and authors did not reply to e-mail request												
All-cause dementia: IGT												
No information in the paper/meta-analysis which studies and confounders were included; no access to the supplement and authors did not reply to e-mail request												
Alzheimer's dementia: IFG/IGT												
No information in the paper/meta-analysis which studies and confounders were included; no access to the supplement and authors did not reply to e-mail request												
Vascular dementia: IFG/IGT												
No information in the paper/meta-analysis which studies and confounders were included; no access to the supplement and authors did not reply to e-mail request												
Cognitive impairment: IFG/IGT												
No information in the paper/meta-analysis which studies and confounders were included; no access to the supplement and authors did not reply to e-mail request												

[a] Only studies of participants with multiple ethnicities need to be adjusted for ethnicity.

ESM Table 6: Detailed description of the risk of bias assessment in the identified meta-analyses using the risk of bias in systematic reviews (ROBIS) tool

Review	Domain					Overall judgement
	Study eligibility criteria	Identification and selection of studies	Data collection and study appraisal	Synthesis and findings	Risk of bias in the review	Explanation
Aune 2018[119]						Unclear definition of prediabetes, unclear study quality, no subgroup/sensitivity analyses possible
Aune 2018[118]						Unclear definition of prediabetes, unclear if data extraction and NOS assessment were conducted by two researchers, unclear study quality, no subgroup/sensitivity analyses possible
Cai 2020[114]						Only concerns: search restricted to human studies and inclusion of duplicate cohorts, however, when we excluded the duplicate cohorts, the results did not change
Cai 2021[127]						Only concerns: search restricted to human studies
Echouffo-Tcheugui 2016[121]						
Fu 2016[125]						No adherence to reporting guidelines or checklists (e.g. MOOSE or PRISMA), unclear definition of prediabetes, no clear exclusion criteria provided, study quality not assessed
Huang 2014[123]						Search restricted to human studies, unclear if data extraction and NOS assessment were conducted by two researchers, cancer incidence and mortality pooled, no discussion of study quality

ESM Table 6: Detailed description of the risk of bias assessment in the identified meta-analyses using the risk of bias in systematic reviews (ROBIS) tool

Review	Domain					Overall judgement
	Study eligibility criteria	Identification and selection of studies	Data collection and study appraisal	Synthesis and findings	Risk of bias in the review	Explanation
Huang 2016[116]						Only concern: search restricted to human studies, otherwise low risk of bias
Li 2020[115]						Unclear if the steps of the review were conducted by two investigators independently
Mitsios 2018[117]						Search restricted to English and human studies, potentially relevant studies excluded due to missing data (no authors contacted), unclear definition of stroke
Mutie 2020[122]						No protocol, literature search only conducted on one database and restricted to human studies, unclear if two independent investigators conducted the data extraction and NOS assessment
Pan 2019[112]						Search restricted to human studies, unclear if NOS assessment was conducted by two investigators, only studies with NOS ≥7 included in data synthesis, no discussion of limitations of cohort studies
Tong 2016[126]						Unclear if data extraction and NOS assessment were conducted by two researchers, potentially relevant studies excluded due to missing data (authors not contacted), no subgroup analyses regarding different prediabetes definitions, no discussion of study quality
Xu 2017[124]						No protocol, unclear definition of prediabetes, nearly no information on literature search, unclear if NOS assessment were conducted by two researchers, use of fixed effect model, mixed prediabetes definitions, mixed study designs (prospective and retrospective studies)

ESM Table 6: Detailed description of the risk of bias assessment in the identified meta-analyses using the risk of bias in systematic reviews (ROBIS) tool

Review	Domain					Overall judgement
	Study eligibility criteria	Identification and selection of studies	Data collection and study appraisal	Synthesis and findings	Risk of bias in the review	Explanation
Xue 2019[113]						No adherence to reporting guidelines or checklists (e.g. MOOSE or PRISMA), unclear definition of prediabetes and dementia, search restricted to English studies, only one database searched, some studies might be missing
Zhao 2020[120]						No protocol, exclusion criteria not defined, 4 studies excluded due to missing data and authors not contacted to receive missing information, literature search restricted to human and English studies

low risk; high risk; unclear risk;

NOS, Newcastle-Ottawa scale.

ESM Table 7: Certainty of evidence of the included meta-analyses by using the GRADE tool

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
All-cause mortality								
All-cause mortality: IFG-ADA								
18	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.08** (1.03 to 1.13)	⊕⊕⊕◯ MODERATE
All-cause mortality: IFG-WHO								
19	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.13** (1.05 to 1.20)	⊕⊕⊕◯ MODERATE
All-cause mortality: IGT-ADA/WHO								
15	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.25** (1.17 to 1.32)	⊕⊕⊕◯ MODERATE
All-cause mortality: HbA1c-ADA								
7	observational studies	not serious	not serious	not serious	not serious	none	**HR 0.98** (0.91 to 1.05)	⊕⊕◯◯ LOW
All-cause mortality: IFG/IGT-ADA								
2	observational studies	not serious	not serious	not serious	serious [d]	dose response gradient [a,b,c]	**HR 1.14** (0.82 to 1.58)	⊕⊕◯◯ LOW
All-cause mortality: IFG/IGT-WHO								
8	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.17** (1.13 to 1.20)	⊕⊕⊕◯ MODERATE

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
All-cause mortality: IFG/HbA1c-ADA								
4	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.05** (0.94 to 1.16)	⊕⊕◯◯ LOW
Long-term all-cause mortality (in patients after PCI): HbA1c-ADA								
3	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.18** (0.92 to 1.50)	⊕◯◯◯ VERY LOW
Short-term all-cause mortality (in patients after PCI): HbA1c-ADA								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.00** (0.69 to 1.44)	⊕◯◯◯ VERY LOW
All-cause mortality in patients with atherosclerotic cardiovascular disease: IFG-ADA								
5	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.60** (1.15 to 2.22)	⊕⊕◯◯ LOW
All-cause mortality in patients with atherosclerotic cardiovascular disease: IFG-WHO								
5	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.19** (0.98 to 1.45)	⊕◯◯◯ VERY LOW
All-cause mortality in patients with atherosclerotic cardiovascular disease: IGT:ADA/WHO								
3	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.34** (0.94 to 1.93)	⊕◯◯◯ VERY LOW
All-cause mortality in patients with atherosclerotic cardiovascular disease: HbA1c-ADA								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 2.30** (0.56 to 9.41)	⊕◯◯◯ VERY LOW

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
All-cause mortality in patients with atherosclerotic cardiovascular disease: IFG/IGT-ADA								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.62** (0.96 to 2.73**)**	⊕◯◯◯ VERY LOW
All-cause mortality in patients with atherosclerotic cardiovascular disease: IFG/IGT-WHO								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.07** (0.75 to 1.52)	⊕◯◯◯ VERY LOW
Cardiovascular outcomes & cardiovascular mortality								
CV events: IFG-ADA								
22	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.09** (1.03 to 1.15)	⊕⊕⊕◯ MODERATE
CV events: IFG-WHO								
25	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.20** (1.09 to 1.34)	⊕⊕⊕◯ MODERATE
CV events: IGT-ADA/WHO								
19	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.23** (1.13 to 1.34)	⊕⊕⊕◯ MODERATE
CV events: HbA1c-ADA								
8	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.05** (0.97 to 1.13)	⊕⊕◯◯ LOW

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
CV events: IFG/IGT-ADA								
2	observational studies	not serious	not serious	not serious	serious [d]	dose response gradient [a,b,c]	**HR 1.15** (0.91 to 1.45)	⊕⊕◯◯ LOW
CV events: IFG/IGT-WHO								
7	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.10** (0.99 to 1.21)	⊕⊕⊕◯ MODERATE
CV events: IFG/HbA1c-ADA								
6	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.05** (0.97 to 1.13)	⊕⊕◯◯ LOW
CV events: IFG/IGT/HbA1c-ADA								
2	observational studies	not serious	not serious	not serious	not serious	none	**HR 0.98** (0.92 to 1.05)	⊕⊕◯◯ LOW
CV events in patients with atherosclerotic cardiovascular disease: IFG-ADA								
6	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.33** (1.02 to 1.75)	⊕⊕⊕◯ MODERATE
CV events in patients with atherosclerotic cardiovascular disease: IFG-WHO								
5	observational studies	not serious	not serious	not serious	serious [d]	dose response gradient [a,b,c]	**HR 1.49** (0.99 to 2.24)	⊕⊕◯◯ LOW
CV events in patients with atherosclerotic cardiovascular disease: IGT-ADA/WHO								
6	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.52** (1.24 to 1.85)	⊕⊕⊕◯ MODERATE

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
CV events in patients with atherosclerotic cardiovascular disease: HbA1c-ADA								
4	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.24** (1.05 to 1.48)	⊕⊕◯◯ LOW
CV events in patients with atherosclerotic cardiovascular disease: IFG and/or HbA1c:-ADA								
2	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.61** (1.07 to 2.43)	⊕⊕◯◯ LOW
CV events in patients with atherosclerotic cardiovascular disease: IFG and/or HbA1c and/or IGT-ADA								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.16** (0.86 to 1.57)	⊕◯◯◯ VERY LOW
CVD mortality: IFG-ADA								
6	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a]	**HR 1.27** (1.02 to 1.58)	⊕⊕⊕◯ MODERATE
CVD mortality: IFG-WHO								
13	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a]	**HR 1.20** (1.05 to 1.38)	⊕⊕⊕◯ MODERATE
CVD mortality: IGT-ADA/WHO								
9	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a]	**HR 1.30** (1.18 to 1.44)	⊕⊕⊕◯ MODERATE
CVD incidence: IFG-ADA								
9	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b]	**HR 1.10** (1.03 to 1.18)	⊕⊕⊕◯ MODERATE

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
CVD incidence: IFG-WHO								
5	observational studies	not serious	not serious	not serious	not serious	dose response gradient [b]	**HR 1.39** (1.15 to 1.68)	⊕⊕⊕◯ MODERATE
CVD incidence: IGT-ADA/WHO								
4	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b]	**HR 1.29** (1.11 to 1.50)	⊕⊕⊕◯ MODERATE
CHD: IFG-ADA								
22	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.09** (1.05 to 1.13)	⊕⊕⊕◯ MODERATE
CHD: IFG-WHO								
12	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.17** (1.09 to 1.26)	⊕⊕⊕◯ MODERATE
CHD: IGT-ADA/WHO								
11	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.21** (1.09 to 1.34)	⊕⊕⊕◯ MODERATE
CHD: HbA1c-ADA								
3	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.30** (1.04 to 1.62)	⊕⊕◯◯ LOW
CHD: IFG/IGT-WHO								
5	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.17** (1.02 to 1.35)	⊕⊕⊕◯ MODERATE

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
CHD: IFG/HbA1c-ADA								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.11** (0.88 to 1.39)	⊕⊕◯◯ LOW
CHD in patients with atherosclerotic cardiovascular disease: IFG-ADA								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.10** (0.92 to 1.30)	⊕◯◯◯ VERY LOW
CHD in patients with atherosclerotic cardiovascular disease: IFG-WHO								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.24** (0.99 to 1.56)	⊕◯◯◯ VERY LOW
CHD in patients with atherosclerotic cardiovascular disease: IGT-ADA/WHO								
3	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.14** (0.84 to 1.54)	⊕◯◯◯ VERY LOW
CHD in patients with atherosclerotic cardiovascular disease: HbA1c-ADA								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.16** (0.65 to 2.05)	⊕◯◯◯ VERY LOW
Stroke: IFG-ADA								
16	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.06** (1.01 to 1.11)	⊕⊕⊕◯ MODERATE
Stroke: IFG-WHO								
8	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.18** (1.10 to 1.26)	⊕⊕⊕◯ MODERATE

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
Stroke: IGT-ADA/WHO								
8	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b,c]	**HR 1.30** (1.10 to 1.54)	⊕⊕⊕◯ MODERATE
Stroke: HbA1c								
4	observational studies	not serious	not serious	not serious	serious [d]	dose response gradient [e]	**HR 1.19** (0.87 to 1.63)	⊕⊕◯◯ LOW
Stroke: IFG/IGT-WHO								
2	observational studies	not serious	not serious	not serious	serious [d]	dose response gradient [a,b,c]	**HR 1.16** (0.81 to 1.65)	⊕⊕◯◯ LOW
Stroke: IFG and/or HbA1c-ADA								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.01** (0.79 to 1.30)	⊕◯◯◯ VERY LOW
Stroke in patients with atherosclerotic cardiovascular disease: IFG-ADA								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 0.99** (0.63 to 1.54)	⊕◯◯◯ VERY LOW
Atrial fibrillation: IFG-ADA or IFG-WHO								
3	observational studies	not serious	not serious	not serious	not serious	dose response gradient [f]	**HR 1.13** (1.003 to 1.27)	⊕⊕⊕◯ MODERATE
Atrial fibrillation: IFG-ADA								
3	observational studies	not serious	not serious	not serious	not serious	dose response gradient [f]	**HR 1.13** (1.03 to 1.24)	⊕⊕⊕◯ MODERATE

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
Heart failure: IFG-ADA								
10	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b]	**HR 1.10** (1.06 to 1.14)	⊕⊕⊕◯ MODERATE
Heart failure: IFG-WHO								
6	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b]	**HR 1.18** (1.07 to 1.30)	⊕⊕⊕◯ MODERATE
Heart failure: IGT-ADA/WHO								
3	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a,b]	**HR 1.58** (1.04 to 2.39)	⊕⊕⊕◯ MODERATE
Sudden cardiac death: IFG/IGT-ADA								
2	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.52** (1.08 to 2.14)	⊕⊕◯◯ LOW
Stroke in patients with history of stroke/TIA: IFG/IGT-ADA/WHO								
3	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.45** (0.98 to 2.14)	⊕◯◯◯ VERY LOW
Stroke in patients with history of stroke/TIA: IFG-WHO								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.17** (0.55 to 2.48)	⊕◯◯◯ VERY LOW

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
Poor outcomes in patients with history of stroke/TIA: IFG/IGT/HbA1c-ADA/WHO (poor outcomes defined as degree of disability or dependence in the daily activities of people who have suffered a stroke or other causes of neurological disability)								
5	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.41** (1.01 to 1.97)	⊕⊕◯◯ LOW
Poor outcomes in patients with history of stroke/TIA: IFG-WHO (poor outcomes defined as degree of disability or dependence in the daily activities of people who have suffered a stroke or other causes of neurological disability)								
2	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.41** (1.05 to 1.90)	⊕⊕◯◯ LOW
Stroke mortality in patients with history of stroke/TIA: IFG/IGT-ADA/WHO								
4	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.40** (0.68 to 2.91)	⊕◯◯◯ VERY LOW
Stroke mortality in patients with history of stroke/TIA: IFG-WHO								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.64** (0.67 to 4.01)	⊕◯◯◯ VERY LOW
Stroke mortality in patients with history of stroke/TIA: HbA1c-ADA								
2	observational studies	not serious	serious [b]	not serious	serious [d]	none	**HR 1.28** (0.30 to 5.51)	⊕◯◯◯ VERY LOW
MACE (in patients after PCI): IFG/IGT/HbA1c-ADA/WHO								
10	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.41** (1.14 to 1.75)	⊕⊕◯◯ LOW

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
MACE (in patients after PCI): IGT-ADA/WHO								
2	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.62** (1.07 to 2.46)	⊕⊕◯◯ LOW
MACE (in patients after PCI): HbA1c-ADA								
3	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.38** (0.88 to 2.17)	⊕◯◯◯ VERY LOW
Microvascular outcomes								
Chronic kidney disease: IFG-ADA/WHO								
8	observational studies	not serious	not serious	not serious	not serious	dose response gradient [b,g]	**HR 1.10** (1.01 to 1.20)	⊕⊕⊕◯ MODERATE
Chronic kidney disease: IFG-WHO								
6	observational studies	not serious	not serious	not serious	not serious	dose response gradient [b,g]	**HR 1.25** (1.02 to 1.53)	⊕⊕⊕◯ MODERATE
Chronic kidney disease: IFG-ADA								
4	observational studies	not serious	not serious	not serious	not serious	dose response gradient [b,g]	**HR 0.97** (0.94 to 1.01	⊕⊕◯◯ LOW
Chronic kidney disease: HbA1c-ADA								
3	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.07** (0.94 to 1.21)	⊕⊕◯◯ LOW

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
Cancer								
Total cancer: IFG-ADA or IFG-WHO								
5	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a]	**HR 1.13** (1.00 to 1.28)	⊕⊕⊕◯ MODERATE
Total cancer: IFG-WHO								
4	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a]	**HR 1.11** (1.01 to 1.22)	⊕⊕⊕◯ MODERATE
Total cancer: IGT-ADA/WHO								
6	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a]	**HR 1.25** (1.02 to 1.53)	⊕⊕⊕◯ MODERATE
Total cancer: IFG/IGT-WHO								
2	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a]	**HR 1.11** (1.02 to 1.21)	⊕⊕⊕◯ MODERATE
Stomach/colorectal cancer: IFG/IGT-ADA/WHO								
3	observational studies	not serious	not serious	serious [h]	not serious	none	**HR 1.55** (1.15 to 2.09)	⊕◯◯◯ VERY LOW
Liver cancer: IFG/IGT-ADA/WHO								
3	observational studies	not serious	not serious	not serious	not serious	strong association [i]	**HR 2.01** (1.45 to 2.79)	⊕⊕⊕◯ MODERATE

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
Hepatocellular carcinoma: IFG/IGT-ADA/WHO								
5	observational studies	not serious	not serious	not serious	not serious	dose response gradient [j]	**HR 1.44** (1.09 to 1.90)	⨁⨁⨁◯ MODERATE
Hepatocellular carcinoma: IFG-ADA								
3	observational studies	not serious	not serious	not serious	not serious	dose response gradient [j]	**HR 1.23** (1.03 to 1.47)	⨁⨁⨁◯ MODERATE
Bronchus and lung cancer: IFG/IGT-ADA/WHO								
2	observational studies	not serious	not serious	serious [h]	serious [d]	none	**HR 1.35** (0.86 to 2.11)	⨁◯◯◯ VERY LOW
Prostate cancer: IFG/IGT-ADA/WHO								
3	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.19** (0.86 to 1.65)	⨁◯◯◯ VERY LOW
Kidney and bladder cancer: IFG/IGT-ADA/WHO								
2	observational studies	not serious	not serious	serious [h]	serious [d]	none	**HR 0.80** (0.55 to 1.16)	⨁◯◯◯ VERY LOW
Breast cancer: IFG/IGT-ADA/WHO								
4	observational studies	not serious	not serious	not serious	not serious	dose response gradient [j]	**HR 1.19** (1.03 to 1.38)	⨁⨁⨁◯ MODERATE
Breast cancer: IFG-WHO								
2	observational studies	not serious	not serious	not serious	not serious	dose response gradient [j]	**HR 1.13** (0.95 to 1.35)	⨁⨁⨁◯ MODERATE

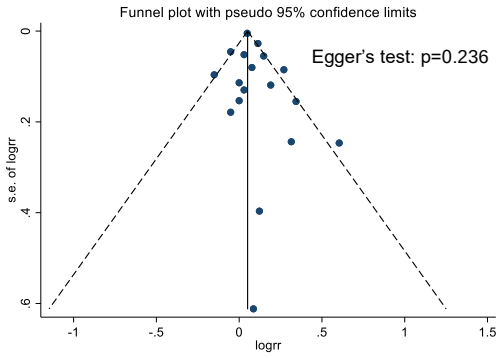
Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
Pancreatic cancer: IFG/IGT-ADA/WHO								
5	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.22** (1.11 to 1.34)	⊕⊕◯◯ LOW
Pancreatic cancer: IFG-ADA								
3	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.25** (1.12 to 1.39)	⊕⊕◯◯ LOW
Mental/cognitive outcomes								
Depressive symptoms: IFG/IGT/HbA1c-ADA/WHO								
4	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 1.07** (0.80 to 1.43)	⊕◯◯◯ VERY LOW
Depressive symptoms: IFG-ADA								
2	observational studies	not serious	not serious	not serious	serious [d]	none	**HR 0.91** (0.67 to 1.23)	⊕◯◯◯ VERY LOW
All-cause dementia: IFG/IGT-ADA/WHO								
9	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a]	**HR 1.18** (1.02 to 1.36)	⊕⊕⊕◯ MODERATE
All-cause dementia: IFG								
na	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a]	**HR 1.27** (1.08 to 1.49)	⊕⊕⊕◯ MODERATE

Certainty assessment							Effect	Certainty
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Summary HR (95% confidence interval)	
All-cause dementia: IGT								
na	observational studies	not serious	not serious	not serious	not serious	dose response gradient [a]	**HR 1.40** (1.03 to 1.91)	⊕⊕⊕◯ MODERATE
Alzheimer's dementia: IFG/IGT								
5	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.36** (1.09 to 1.70)	⊕⊕◯◯ LOW
Vascular dementia: IFG/IGT								
3	observational studies	not serious	not serious	not serious	not serious	none	**HR 1.47** (1.01 to 2.15)	⊕⊕◯◯ LOW
Cognitive impairment: IFG/IGT								
5	observational studies	not serious	not serious	not serious	not serious	none	**HR 0.96** (0.85 to 1.09)	⊕⊕◯◯ LOW

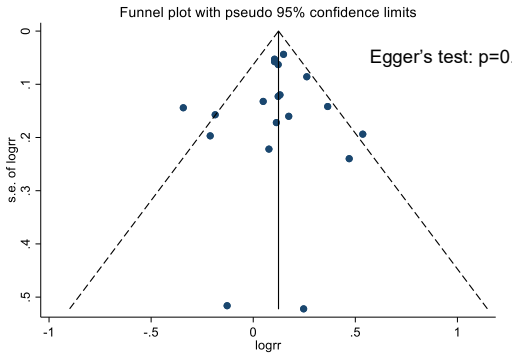
ADA, American Diabetes Association; CHD, coronary heart disease; CI, confidence interval; CV, cardiovascular; CVD, cardiovascular disease; HR: Hazard ratio, IDF, International Diabetes Federation; IFG, impaired asting glucose; IGT, impaired glucose tolerance; MACE, major adverse cardiac events; TIA, transient ischemic attack; WHO, World Health Organization.

a: upgraded: stronger association for IGT than for IFG
b: upgraded: stronger association for IFG-WHO than for IFG-ADA
c: upgraded: dose-response gradient shown in Cai, 2020 [114]
d: downgraded: 95% CI includes the null value and includes important benefit (SHR ≤0.75) and/or harm benefit (SHR≥1.25)
e: upgraded: dose-response gradient shown in Mitsios, 2018 [117]
f: upgraded: dose-response gradient shown in Aune, 2017 [118]
g: upgraded: stronger association for IFG-WHO than for IFG-WHO and IFG-ADA combined
h: downgraded: mixed outcome were analysed
i: upgraded: strong association: SHR>2
j: upgraded: stronger association for IFG/IGT than for IFG alone

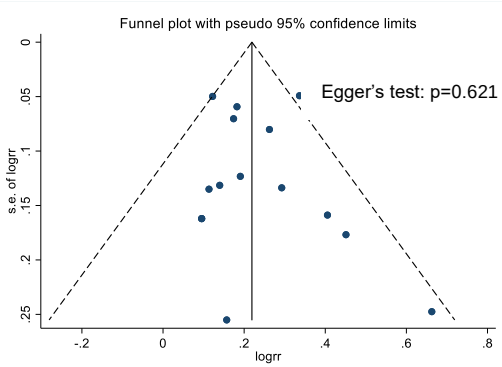
A)


Funnel plot with pseudo 95% confidence limits
Egger's test: p=0.236
s.e. of logrr
logrr

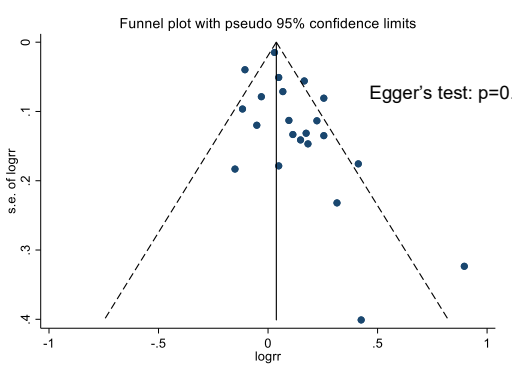
B)


Funnel plot with pseudo 95% confidence limits
Egger's test: p=0.777
s.e. of logrr
logrr

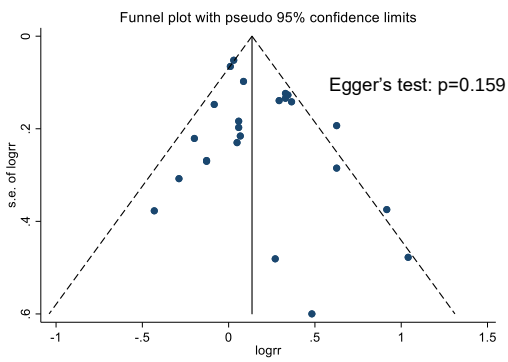
C)


Funnel plot with pseudo 95% confidence limits
Egger's test: p=0.621
s.e. of logrr
logrr

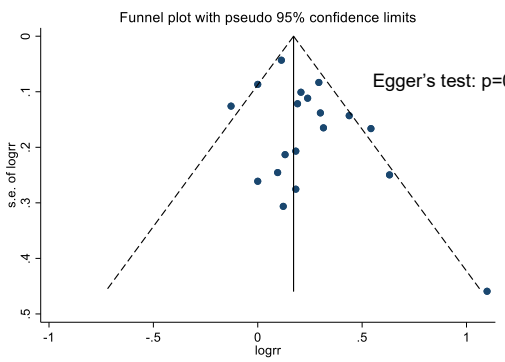
D)


Funnel plot with pseudo 95% confidence limits
Egger's test: p=0.035
s.e. of logrr
logrr

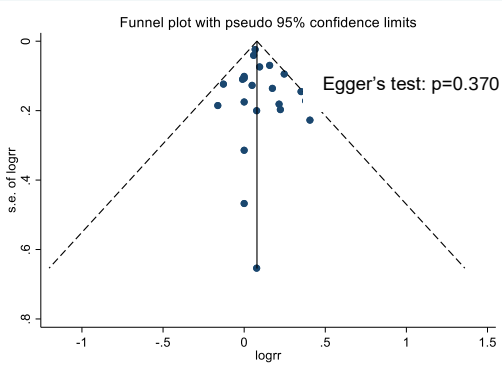
E)


Funnel plot with pseudo 95% confidence limits
Egger's test: p=0.159
s.e. of logrr
logrr

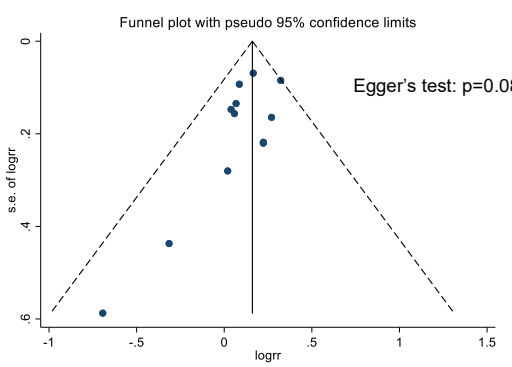
F)


Funnel plot with pseudo 95% confidence limits
Egger's test: p=0.085
s.e. of logrr
logrr

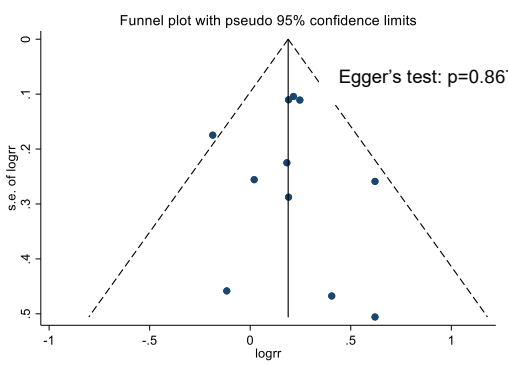
G)


Funnel plot with pseudo 95% confidence limits
Egger's test: p=0.370
s.e. of logrr
logrr

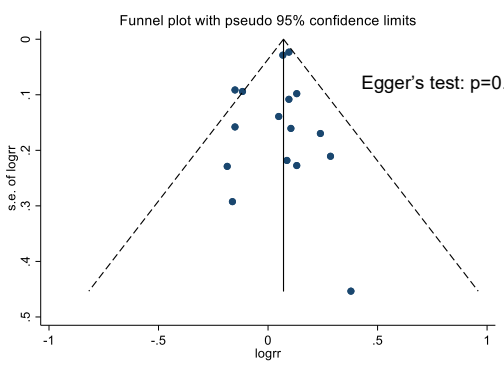
H)


Funnel plot with pseudo 95% confidence limits
Egger's test: p=0.081
s.e. of logrr
logrr

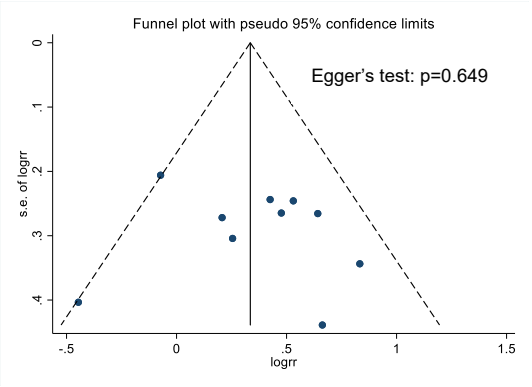
I)


Funnel plot with pseudo 95% confidence limits
Egger's test: p=0.867
s.e. of logrr
logrr

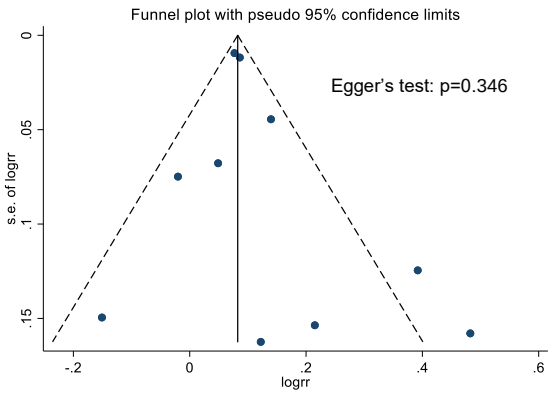
J)


Funnel plot with pseudo 95% confidence limits
Egger's test: p=0.386
s.e. of logrr
logrr

K)



L)



ESM Fig. 1: Funnel plots for the association between prediabetes and A) all-cause mortality (IFG-ADA), B) all-cause mortality (IFG-WHO), C) all-cause mortality (IGT), D) cardiovascular events (IFG-ADA), E) cardiovascular events (IFG-WHO), F) cardiovascular events (IGT), G) coronary heart disease (IFG-ADA), H) coronary heart disease (IFG-WHO), I) coronary heart disease (IGT), J) stroke (IFG-ADA), K) Major adverse cardiac events (MACE) in patients after percutaneous coronary intervention (PCI) (IFG/IGT/HbA1c), and L) heart failure (IFG-ADA)

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