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Supplementary Figure 1–Multivariable-adjusted HRs (95% CI) of all-cause and cause-specific mortality according to the baseline status of prediabetes and diabetes

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**Supplementary Table 1** Characteristics of the excluded and included participants

	Included participants (n=62,875)	Excluded participants (n=46,821)
Age (year)	45.0 ± 10.1	39.8 ± 13.4
Men (%)	85.4	78.9
BMI (kg/m <sup>2</sup> )	23.4 ± 3.5	23.1 ± 3.6*
Current smoker (%)	33.1	29.7*
SBP (mmHg)	121.1 ± 15.1	120.9 ± 15.9*
DBP (mmHg)	76.2 ± 10.8	73.0 ± 11.9*
Hypertension (yes, %)	20.3	18.6
Triglycerides (mg/dL)	121.0 ± 93.0	117.6 ± 98.3*
HDL-C (mg/dL)	58.7 ± 15.2	59.7 ± 15.0*
LDL-C (mg/dL)	120.9 ± 30.4	116.1 ± 31.4*
Dyslipidemia (yes, %)	45.2	31.2
HbA1c	5.59 ± 0.66	5.58 ± 0.76*
Blood glucose	99.7 ± 18.5	98.8 ± 24.8*

Unless indicated otherwise data are given as the age- and sex- adjusted (mean ± SE) or percentage distribution. BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure, HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol.

\*Number of excluded participants (n=46,631 for BMI; n=41,760 for smoking behaviors; n=46,573 for SBP and DBP; n=35,516 for triglycerides; n=35,499 for HDL-C; n=35,488 for LDL-C; n=26,878 for HbA1c; n=35,202 for blood glucose.

**Supplementary Table 2** Multivariable-adjusted HRs (95% CI) of mortality according to the baseline status of prediabetes after excluding the participants who died due to liver cancer and pancreatic cancer

	ADA criteria		WHO/IEC criteria	
	Normoglycemia	Prediabetes	Normoglycemia	Prediabetes
No. of participants	33,984	24,131	50,101	8,014
Person-years	191,119	132,478	280,769	42,828
<b>Cancer mortality</b>				
No. of deaths	20	45	44	21
Model 1	1.00 (reference)	<b>2.61 (1.50–4.54)</b>	1.00 (reference)	<b>2.28 (1.33–3.91)</b>
Model 2	1.00 (reference)	<b>2.53 (1.44–4.44)</b>	1.00 (reference)	<b>2.17 (1.25–2.69)</b>

ADA, American Diabetes Association; WHO, World Health Organization; IEC, International Expert Committee; HRs, hazard ratios; CI, confidence interval; CVD, cardiovascular disease. Values in bold show statistical significance. Model 1 adjusted for age (year, continuous), sex, and worksite; model 2 additionally adjusted for BMI (kg/m<sup>2</sup>, continuous), smoking status (never smoker, former smoker, or current smoker), hypertension (yes or no), and dyslipidemia (yes or no).

**Supplementary Table 3** Multivariable-adjusted HRs (95% CI) of mortality according to the prediabetes and diabetes after excluding the people who had prediabetes at baseline and developed diabetes later (in ADA, n=655), (in WHO/IEC, n=422)

	ADA criteria		WHO/IEC criteria	
	Normoglycemia	Prediabetes	Normoglycemia	Prediabetes
No. of participants	33,990	23,488	50,114	7,597
Person-years	191,140	129,974	280,813	41,071
<b>All-cause mortality</b>				
No. of deaths	78	89	141	35
Model 1	1.00 (reference)	1.35 (0.98–1.85)	1.00 (reference)	1.31 (0.90–1.92)
Model 2	1.00 (reference)	1.31 (0.95–1.81)	1.00 (reference)	1.23 (0.84–1.82)
<b>Cancer mortality</b>				
No. of deaths	26	50	57	22
Model 1	1.00 (reference)	<b>2.09 (1.28–3.45)</b>	1.00 (reference)	<b>1.84 (1.11–3.07)</b>
Model 2	1.00 (reference)	<b>2.08 (1.26–3.45)</b>	1.00 (reference)	<b>1.81 (1.08–3.04)</b>
<b>CVD mortality</b>				
No. of deaths	19	20	32	8
Model 1	1.00 (reference)	1.18 (0.61–2.28)	1.00 (reference)	1.25 (0.57–2.78)
Model 2	1.00 (reference)	0.98 (0.50–1.90)	1.00 (reference)	0.99 (0.44–2.20)
<b>Other cause mortality</b>				
No. of deaths	33	19	52	5
Model 1	1.00 (reference)	0.79 (0.44–1.43)	1.00 (reference)	0.61 (0.24–1.54)
Model 2	1.00 (reference)	0.86 (0.47–1.57)	1.00 (reference)	0.63 (0.25–1.62)

ADA, American Diabetes Association; WHO, World Health Organization; IEC, International Expert Committee; HRs, hazard ratios; CI, confidence interval; CVD, cardiovascular disease. Values in bold show statistical significance. Model 1 adjusted for age (year, continuous), sex, and worksite; model 2 additionally adjusted for BMI (kg/m<sup>2</sup>, continuous), smoking status (never smoker, former smoker, or current smoker), hypertension (yes or no), and dyslipidemia (yes or no).

**Supplementary Table 4** Multivariable-adjusted HRs (95% CI) of mortality according to the baseline status of prediabetes and diabetes after excluding those (n=6,686) who were taking antihypertensive medication.

	ADA criteria			WHO/IEC criteria		
	Normoglycemia	Prediabetes	Diabetes	Normoglycemia	Prediabetes	Diabetes
No. of Participants	32,026	20,813	3,071	46,479	6,518	3,102
Person-years	181,687	116,568	15,792	262,699	35,556	15,792
<b>All-cause mortality</b>						
No. of deaths	70	88	31	123	35	31
Model 1	1.00 (reference)	<b>1.57 (1.13–2.19)</b>	<b>3.28 (2.09–5.13)</b>	1.00 (reference)	<b>1.60 (1.09–2.36)</b>	<b>2.81 (1.86–4.23)</b>
Model 2	1.00 (reference)	<b>1.53 (1.09–2.13)</b>	<b>3.01 (1.89–4.78)</b>	1.00 (reference)	<b>1.52 (1.03–2.25)</b>	<b>2.57 (1.69–3.93)</b>
<b>Cancer mortality</b>						
No. of deaths	23	45	10	47	21	10
Model 1	1.00 (reference)	<b>2.22 (1.31–3.75)</b>	<b>2.78 (1.28–6.05)</b>	1.00 (reference)	<b>2.24 (1.31–3.81)</b>	<b>2.09 (1.04–4.23)</b>
Model 2	1.00 (reference)	<b>2.22 (1.30–3.78)</b>	<b>2.79 (1.25–6.18)</b>	1.00 (reference)	<b>2.22 (1.29–3.82)</b>	<b>2.09 (1.02–4.29)</b>
<b>CVD mortality</b>						
No. of deaths	16	18	9	28	6	9
Model 1	1.00 (reference)	1.28 (0.63–2.59)	<b>3.69 (1.54–8.84)</b>	1.00 (reference)	1.09 (0.44–2.68)	<b>3.26 (1.48–7.16)</b>
Model 2	1.00 (reference)	1.09 (0.54–2.23)	<b>2.52 (1.02–6.21)</b>	1.00 (reference)	0.88 (0.35–2.18)	<b>2.30 (1.02–5.18)</b>
<b>Other cause mortality</b>						
No. of deaths	31	25	12	48	8	12
Model 1	1.00 (reference)	1.21 (0.69–2.10)	<b>3.70 (1.81–7.55)</b>	1.00 (reference)	1.16 (0.54–2.49)	<b>3.45 (1.77–6.71)</b>
Model 2	1.00 (reference)	1.23 (0.70–2.16)	<b>3.68 (1.74–7.76)</b>	1.00 (reference)	1.15 (0.53–2.52)	<b>3.38 (1.69–6.75)</b>

ADA, American Diabetes Association; WHO, World Health Organization; IEC, International Expert Committee; HRs, hazard ratios; CI, confidence interval; CVD, cardiovascular disease. Values in bold show statistical significance. Model 1 adjusted for age (year, continuous), sex, and worksite; model 2 additionally adjusted for BMI (kg/m<sup>2</sup>, continuous), smoking status (never smoker, former smoker, or current smoker), hypertension (yes or no), and dyslipidemia (yes or no).

**Supplementary Table 5** Multivariable-adjusted HRs (95% CI) of mortality according to the baseline status of prediabetes and diabetes after excluding those (n=4,167) who were using lipid-lowering medication.

	ADA criteria			WHO/IEC criteria		
	Normoglycemia	Prediabetes	Diabetes	Normoglycemia	Prediabetes	Diabetes
No. of participants	32,879	22,205	3,534	47,980	7,104	3,534
Person-years	185,066	122,059	17,498	269,117	38,008	17,498
<b>All-cause mortality</b>						
No. of deaths	74	104	37	135	43	37
Model 1	1.00 (reference)	<b>1.71 (1.25–2.34)</b>	<b>3.40 (2.24–5.18)</b>	1.00 (reference)	<b>1.72 (1.20–2.44)</b>	<b>2.81 (1.92–4.12)</b>
Model 2	1.00 (reference)	<b>1.60 (1.16–2.20)</b>	<b>2.82 (1.82–4.37)</b>	1.00 (reference)	<b>1.54 (1.08–2.22)</b>	<b>2.36 (1.59–3.51)</b>
<b>Cancer mortality</b>						
No. of deaths	26	56	12	57	25	12
Model 1	1.00 (reference)	<b>2.46 (1.51–4.00)</b>	<b>2.84 (1.39–5.82)</b>	1.00 (reference)	<b>2.14 (1.32–3.49)</b>	<b>1.95 (1.03–3.71)</b>
Model 2	1.00 (reference)	<b>2.34 (1.43–3.83)</b>	<b>2.57 (1.23–5.39)</b>	1.00 (reference)	<b>2.00 (1.28–3.28)</b>	1.78 (0.92–3.44)
<b>CVD mortality</b>						
No. of deaths	18	21	13	31	8	13
Model 1	1.00 (reference)	1.33 (0.69–2.57)	<b>4.45 (2.06–9.62)</b>	1.00 (reference)	1.30 (0.59–2.89)	<b>4.01 (2.02–7.97)</b>
Model 2	1.00 (reference)	1.07 (0.55–2.09)	<b>2.64 (1.18–5.92)</b>	1.00 (reference)	0.99 (0.44–2.21)	<b>2.52 (1.23–5.15)</b>
<b>Other cause mortality</b>						
No. of deaths	30	27	12	47	10	12
Model 1	1.00 (reference)	1.27 (0.73–2.19)	<b>3.42 (1.67–7.02)</b>	1.00 (reference)	1.38 (0.68–2.79)	<b>3.22 (1.65–6.29)</b>
Model 2	1.00 (reference)	1.28 (0.73–2.23)	<b>3.25 (1.53–6.92)</b>	1.00 (reference)	1.37 (0.67–2.80)	<b>3.03 (1.51–6.11)</b>

ADA, American Diabetes Association; WHO, World Health Organization; IEC, International Expert Committee; HRs, hazard ratios; CI, confidence interval; CVD, cardiovascular disease. Values in bold show statistical significance. Model 1 adjusted for age (year, continuous), sex, and worksite; model 2 additionally adjusted for BMI (kg/m<sup>2</sup>, continuous), smoking status (never smoker, former smoker, or current smoker), hypertension (yes or no), and dyslipidemia (yes or no).

**Supplementary Table 6** Multivariable-adjusted HRs (95% CI) of mortality for prediabetes subgroups, using different glycemic criteria

Definition	No. of participants	Person-years	All-cause mortality	Cancer mortality	CVD mortality	Other cause mortality
<b>Overall</b>						
No. of deaths			78	26	19	33
FPG <100 mg/dl and HbA1c <5.7%	33,990	191,140	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
No. of deaths			63	31	13	19
FPG 100-109 mg/dl and/or HbA1c 5.7-5.9%	16,124	89,673	<b>1.43 (1.01–2.02)</b>	<b>2.07 (1.21–3.56)</b>	1.03 (0.50–2.14)	1.18 (0.66–2.12)
No. of deaths			44	26	8	10
FPG 110-125 mg/dl and/or HbA1c 6.0-6.4%	8,019	42,854	<b>1.74 (1.17–2.59)</b>	<b>2.99 (1.66–5.38)</b>	0.95 (0.40–2.27)	1.24 (0.58–2.65)
No. of deaths			44	14	17	13
Diabetes	4,652	23,210	<b>2.69 (1.78–4.09)</b>	<b>2.62 (1.29–5.33)</b>	<b>2.72 (1.28–5.79)</b>	<b>2.63 (1.27–5.47)</b>
<b>By FPG</b>						
No. of deaths			95	33	22	40
FPG <100 mg/dl	38,338	214,604	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
No. of deaths			59	31	12	16
FPG 100-109 mg/dl	14,679	81,400	1.36 (0.97–1.90)	<b>2.04 (1.22–3.39)</b>	1.07 (0.52–2.20)	0.97 (0.53–1.77)
No. of deaths			37	21	8	8
FPG 110-125 mg/dl	5,706	30,634	<b>1.90 (1.28–2.86)</b>	<b>3.09 (1.71–5.56)</b>	1.43 (0.61–3.37)	1.21 (0.55–2.70)
No. of deaths			38	12	15	11
FPG ≥126 mg/dl	4,062	20,238	<b>2.49 (1.28–2.86)</b>	<b>2.31 (1.13–4.72)</b>	<b>2.95 (1.41–6.20)</b>	<b>2.26 (1.08–4.74)</b>
<b>By HbA1c</b>						
No. of deaths			127	51	30	46
HbA1c <5.7%	47,224	26,5413	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
No. of deaths			40	18	10	12
HbA1c 5.7-5.9%	6,921	37,481	<b>1.73 (1.20–2.50)</b>	<b>1.86 (1.07–3.23)</b>	1.46 (0.70–3.05)	1.80 (0.93–3.48)
No. of deaths			24	15	3	6

HbA1c 6.0-6.4%	4,736	24,648	1.36 (0.86–2.14)	<b>2.04 (1.11–3.75)</b>	0.50 (0.15–1.70)	1.30 (0.93–3.48)
No. of deaths			38	13	14	11
HbA1c ≥6.5%	3,904	19,334	<b>2.37 (1.59–3.53)</b>	<b>2.03 (1.06–3.92)</b>	<b>2.36 (1.16–4.80)</b>	<b>2.70 (1.30–5.59)</b>

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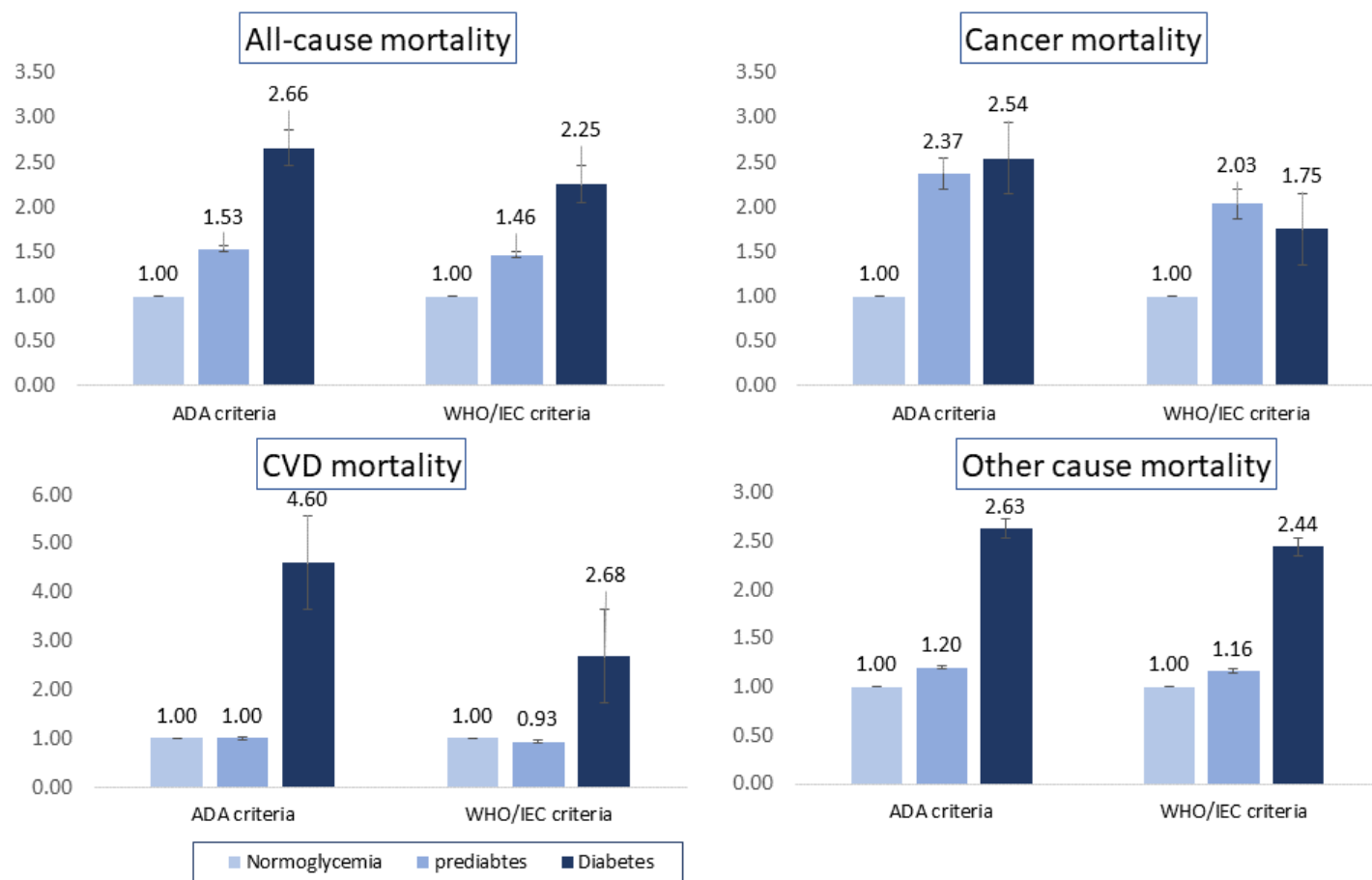
ADA, American Diabetes Association; WHO, World Health Organization; IEC, International Expert Committee; HRs, hazard ratios; CI, confidence interval; CVD, cardiovascular disease. Values in bold show statistical significance. Model was adjusted for age (year, continuous), sex, worksite, BMI (kg/m<sup>2</sup>), smoking status (never smoker, former smoker, or current smoker), hypertension (yes or no), and dyslipidemia (yes or no).



**Supplementary Table 7** Multivariable-adjusted HRs (95% CI) of mortality according to the baseline status of prediabetes and diabetes in one major company (n=36,379) while additionally adjusting for job position, occupational physical activity, and alcohol intake

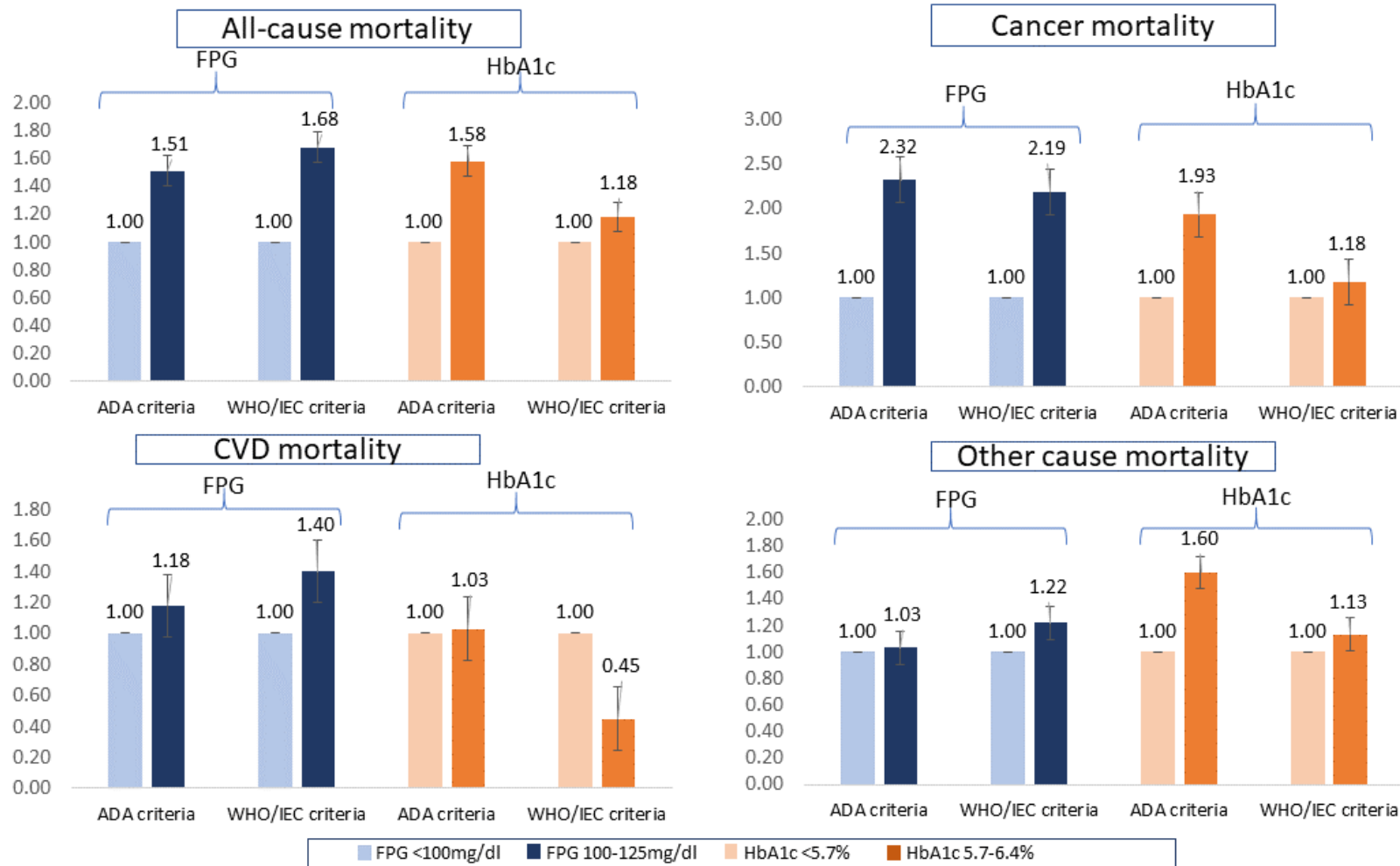
	ADA criteria			WHO/IEC criteria		
	Normoglycemia	Prediabetes	Diabetes	Normoglycemia	Prediabetes	Diabetes
No. of participants	17,408	16,132	2,839	28,142	5,398	2,839
Person-years	105,661	95,209	15,430	169,730	31,140	15,430
<b>All-cause mortality</b>						
No. of deaths	35	69	22	71	33	22
Model 1	1.00 (reference)	<b>1.71 (1.12–2.60)</b>	<b>2.85 (1.62–4.99)</b>	1.00 (reference)	<b>1.98 (1.29–3.02)</b>	<b>2.44 (1.49–4.01)</b>
Model 2	1.00 (reference)	<b>1.55 (1.01–2.38)</b>	<b>2.32 (1.28–4.18)</b>	1.00 (reference)	<b>1.78 (1.15–2.74)</b>	<b>2.07 (1.23–3.50)</b>
<b>Cancer mortality</b>						
No. of deaths	10	41	5	31	20	5
Model 1	1.00 (reference)	<b>3.34 (1.65–6.79)</b>	2.03 (0.67–6.12)	1.00 (reference)	<b>2.50 (1.40–4.46)</b>	1.13 (0.43–2.96)
Model 2	1.00 (reference)	<b>3.32 (1.62–6.82)</b>	2.04 (0.65–6.34)	1.00 (reference)	<b>2.46 (1.35–4.46)</b>	1.13 (0.42–3.03)
<b>CVD mortality</b>						
No. of deaths	10	15	8	19	6	8
Model 1	1.00 (reference)	1.29 (0.57–2.96)	<b>3.61 (1.34–9.71)</b>	1.00 (reference)	1.33 (0.52–3.40)	<b>3.30 (1.38–7.85)</b>
Model 2	1.00 (reference)	1.03 (0.44–2.37)	2.10 (0.74–5.95)	1.00 (reference)	1.02 (0.39–2.64)	2.07 (0.83–5.17)
<b>Other cause mortality</b>						
No. of deaths	15	13	9	21	7	9
Model 1	1.00 (reference)	0.83 (0.39–1.79)	<b>3.28 (1.35–7.96)</b>	1.00 (reference)	1.67 (0.69–4.01)	<b>4.15 (1.82–9.48)</b>
Model 2	1.00 (reference)	0.75 (0.35–1.64)	<b>2.68 (1.03–6.98)</b>	1.00 (reference)	1.53 (0.63–3.77)	<b>3.67 (1.51–8.92)</b>

ADA, American Diabetes Association; WHO, World Health Organization; IEC, International Expert Committee; HRs, hazard ratios; CI, confidence interval; CVD, cardiovascular disease. Values in bold show statistical significance. Model 1 adjusted for age (year, continuous), sex, and worksite; model 2 additionally adjusted for BMI (kg/m<sup>2</sup>, continuous), smoking status (never smoker, former smoker, or current smoker), alcohol intake (<23 g ethanol/day), occupational physical activity (sedentary, mostly standing and walking often, or fairly active), job position (high or low), hypertension (yes or no), and dyslipidemia (yes or no).



ADA, American Diabetes Association; WHO, World Health Organization; IEC, International Expert Committee; HRs, hazard ratios; CI, confidence interval; CVD, cardiovascular disease. Model was adjusted for age (year, continuous), sex, worksite, BMI (kg/m<sup>2</sup>, continuous), smoking status (never smoker, former smoker, or current smoker), hypertension (yes or no), and dyslipidemia (yes or no).

**Supplementary Figure 1**– Multivariable-adjusted HRs (95% CI) of all-cause and cause-specific mortality according to the baseline status of prediabetes and diabetes



ADA, American Diabetes Association; WHO, World Health Organization; IEC, International Expert Committee; HRs, hazard ratios; CI, confidence interval; CVD, cardiovascular disease. Model was adjusted for age (year, continuous), sex, worksite, BMI (kg/m<sup>2</sup>, continuous), smoking status (never smoker, former smoker, or current smoker), hypertension (yes or no), and dyslipidemia (yes or no).

**Supplementary Figure 2**– Multivariable-adjusted HRs (95% CI) of all-cause and cause-specific mortality for prediabetes subgroups, using the ADA or the WHO/IEC criteria