Table S1. Overview of the risk for COVID-19-related mortality according to the glycemic control status before hospitalization.

Author	Study Population	Region	Period	No. of Patients	HbA1c level		Outcome	Risk		Ref. No.
					mmol/mol	%				
Holman et al.	Nationwide population-based cohort study	United Kingdom	March 1–May 6 2020	T1D 264,390, T2D 2,874,020, COVID-19-related deaths: T1D 464, T2D 10,525	48–53	6.5–7.0	Mortality	ref		[26]
					59–74	7.6–8.9		T1D: HR 1.16(0.81–1.67), T2D: HR 1.22(1.15–1.30)	*	
					75–85	9.0–9.9		T1D: HR 1.37(0.90–2.07), T2D: HR 1.36(1.24–1.50)	*	
					≥86	≥ 10		T1D: HR 2.23(1.50–3.30), T2D: HR 1.61(1.47–1.77)	*	
Cariou et al.	Multi-center cohort study	France	March 10–March 31 2020	846 HbA1c available, total: 1,317, T1D 39, T2D 1,166	<3	<7.0	Mortality	ref		[27]
					53–63	7.0–7.9		OR 1.55(0.82–2.93)	**	
					64–74	8.0–8.9		OR 1.09(0.52–2.28)	**	
					≥75	≥9		OR 0.84(0.40–1.75)	**	
Williamson et al.	Nationwide population-based cohort study	United Kingdom	January 1–May 6 2020	Total 17,278,392, COVID-19-related deaths 10,926	< 58	<7.5	Mortality	HR: 1.31(1.24–1.37)	#	[32]
					≥58	≥7.5		HR: 1.95(1.83–2.08)	#	

T1D: type 1 diabetes, T2D: type 2 diabetes, HR: hazard ratio, OR: odds ratio. * adjusted for sex, age, ethnicity, socioeconomic deprivation, renal impairment, BMI (body mass index), tobacco smoking status, and cardiovascular comorbidities. ** adjusted for sex and age. # adjusted for age, sex, BMI, smoking, IMD (index of multiple deprivation) quintile, and comorbiditiessevere asthma, respiratory disease, chronic heart disease, liver disease, stroke, dementia, other neurological diseases, reduced kidney function, autoimmune diseases (rheumatoid arthritis, lupus or psoriasis) and other immunosuppressive conditions.

Table S2. Overview of the risk for adverse clinical outcomes of COVID-19 according to the blood glucose levels at admission.

Author	Study Population		Region	Period	No. of Patients	Parameter of Hyperglycemia		Outcome	Risk		Ref. No.
Cariou et al.	Multi-center cohort study	Diabetes	France	March 10–31 2020	940 admission plasma glucose available, total 1,317	PG	> 5.55 mmol/L	Tracheal intubation and/or death within 7 days of admission	OR 1.28 (1.12–1.48)	[a]	[27]
								7-day mortality	OR 1.20 (0.98–1.46)	[a]	
Wang et al.	Multi-center retrospective cohort study	Hospitalized patients without a previous diagnosed diabetes	China	January 24– February 10 2020	605	FBG	≥ 7.0 mmol/L	Mortality	HR 2.30(1.49–3.55)		[34]
						FBG	< 6.0 mmol/L	In hospital complications [*]	ref		
							6.1–6.9 mmol/L		OR: 2.61(1.64–4.41)		
							≥ 7.0 mmol/L		OR: 3.99(2.71–5.88)		
Yang et al.	Single-center, retrospective study	Hospitalized	China	February 8– March 10 2020	263	FPG	7.0–11.0 mmol/L	Mortality	HR 1.90(1.11–3.25)	[b]	[35]
							≥ 11.1 mmol/L		HR 2.09(1.21–3.64)		
Zhang et al.	Multi-center, retrospective cohort study	Hospitalized	China	January 1– March 17 2020	312	FBG	< 5.6 mmol/L	Mortality	ref		[36]
							5.6-6.9 mmol/L		HR 4.11(1.15–14.74)	[c]	
Liu et al.	Single-center, retrospective study	Hospitalized	China	February 1–24 2020	255	FPG	< 7 mmol/L	ICU admission	ref		[37]
							7–11.0 mmol/L		HR 5.538(2.269–13.51)	[d]	
							≥ 11.1 mmol/L		HR 11.55(4.45–29.99)	[d]	

Wu et al.	Two-center, retrospective study	Hospitalized	China	December 26 2019–March 15 2020	2,041	BG	≥ 6.1 mmol/L	Progression to critical cases/death among non-critical cases In-hospital mortality in critical cases	HR 1.30(1.03–1.63) HR 1.84(1.14–2.98)	[e] [e]	[38]
Liu et al.	Two-center, retrospective cohort study	Hospitalized	China	N.d.	123	FBG	≥ 6.5 mmol/L	Critical illness [**]	OR 1.249(1.032–1.521)		[39]
Fadini et al.	Retrospective observational study	Hospitalized	Italy	Feburary 21–April 20 2020	413	FPG	Each 2 mmol/L increase	Severity	RR 1.21(1.11–1.32)		[40]
Smith et al.	Single-center, retrospective study	Hospitalized	USA	March 16–May 2 2020	184	mean FBG		Severity (requiring intubation)	Intubated: 238.0 mg/dL Not intubated: 163.7 mg/dL		[41]
Zhang et al.	Single-center, retrospective cohort study	Hospitalized	China	February 8–March 21 2020	166	FPG	< 7.0 mmol/L with no history of diabetes ≥ 7.0 mmol/L HbA1c < 6.5% Secondary hyperglycemia	ICU admittion, mechanical ventilation or death	ref OR 2.61(0.86–7.88)	 [f]	[42]
Li et al.	Two-center, retrospective cohort study	Diabetes	China	December 31 2019–April 5 2020	Total 132 T1D 2, T2D 130	FBG	> 11 mmol/L ≤ 11 mmol/L	Death In-hospital complications [***]	OR 7.629(1.391–37.984) OR 3.232(1.393–7.498)		[43]
Klonoff et al.	Multi-center retrospective cohort study	Admitted to ICU	USA	March 10–31 2020	Total 1,544 ICU patients	BG	< 7.77 mmol/L > 13.88 mmol/L	Mortality	ref HR 3.14(1.44–6.88)	 [g]	[44]

Li et al.	Single-center, retrospective study	Hospitalized	China	January 22–March 17 2020	453	Normal glucose	< 5.6% HbA1c		Mortality	HR 1.00	[45]
						Hyperglycaemia	Fasting glucose 5.6–6.9 mmol/L and/or HbA1c 5.7–6.4%			HR 3.29(0.65–16.6) [h]	
						Newly diagnosed DM	≥ 7 mmol/L and/or HbA1c ≥ 6.5%			HR 9.42(2.18–40.7) [h]	
						Known diabetes				HR 4.63 (1.02–21.0) [h]	
Coppelli et al.	Single-center, retrospective study	Hospitalized	Italy	March 20–April 30 2020	271	BG	≥ 7.78 mmol/L	with no history of diabetes	Mortality	HR 1.80(1.03–3.15) [a]	[46]

FPG: fasting plasma glucose, FBG: fasting blood glucose, T1D: type 1 diabetes, T2D: type 2 diabetes. * ARDS, acute cardiac injury, acute kidney injury, acute liver injury, cerebrovascular accident, coagulopathy, secondary infection. ** critical illness as a composite of admission to the intensive care unit (ICU), respiratory failure requiring mechanical ventilation, septic shock during hospitalization, or death. *** SARS-CoV-2-related ARDS, acute cardiac injury, acute kidney injury and secondary infection. [a] adjusted for sex and age. [b] adjusted for sex. [c] adjusted for age, sex, hospitals and comorbidities. [d] adjusted for age, gender, and disease duration. [e] adjusted for all available factors in baseline characteristics. [f] adjusted for age, sex, BMI, medical histories of hypertension, cardiovascular disease and malignancy. [g] adjusted for sex, age, baseline BMI, history of diabetes, and HbA1c. [h] adjusted for age, sex, smoking, systolic blood pressure and total cholesterol.

Table S3. Overview of the risk for adverse clinical outcomes of COVID-19 according to the glycemic control during hospitalization.

Author	Study Population	Region	Period	No. of Patients	Blood Glucose Level			Outcome	Risk		Ref. No.
						mmol/L	mg/dL				
Wu et al.	Two-center retrospective study	Critical cases	China	December 26 2019–March 15 2020	Total 2041, non-critical 1690 at admission, critical 697	median BG	≥ 6.1	≥ 110	Progression to critical cases/death among non-critical cases	HR 2.25 (1.78–2.84)	*	[38]
									In-hospital mortality among critical cases	HR 2.39 (1.41–4.07)	*	
Klonoff et al.	Multi-center retrospective cohort study	Non-ICU patients	USA	March 10–March 31 2020	Total 1,544, non-ICU 1,184	mean BG on day 2–3	< 7.77	< 140	Mortality	ref		[44]
							> 13.88	> 250		HR 7.17(2.62–19.62)	#	
Bode et al.	Multi-center retrospective obsevational study	Hospitalized patients	USA	March 1–April 6 2020	Total 1122, 184 in analysis	≥2 BGs > 180 mg/ dL within 24 hour with an HbA1c < 6.5%			Mortality	41.7% vs 14.8%		[47]
									Lengths of hospital stay	6.2(1.1–20.7) days vs 5.0(1.1–24.6) days		
Zhu et al.	Multi-center retrospective cohort study	Hospitalized patients	China	December 30 2019–March 20 2020	Total 7,337, Type 2 diabetes 952 (810 in analysis)	BG	3.9–10.0	70–180	Mortality	HR 0.14 (0.03–0.06)	&$	[48]
							> 10.0	> 180		ref		

* adjusted for all available factors in baseline characteristics. # adjusted for sex, age, baseline BMI, history of diabetes, and admission BG. "& In the propensity score-matched model, age, gender, hospital sites, indicators of the severity of COVID-19, comorbidities (hypertension, coronary heart disease, cerebral vascular disease, chronic liver disease, and chronic renal diseases), and incidence of increased creatinine were matched". $ Mixed-effect Cox model using the hospital site as a random effect and adjusting imbalanced durations from symptom onset to admission.