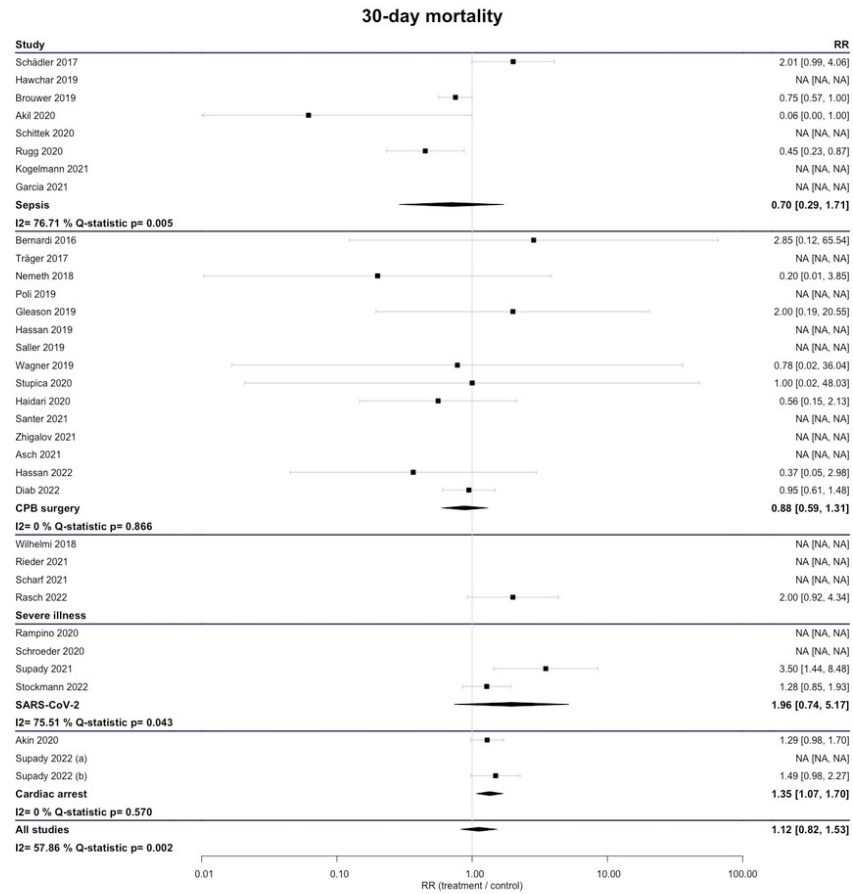
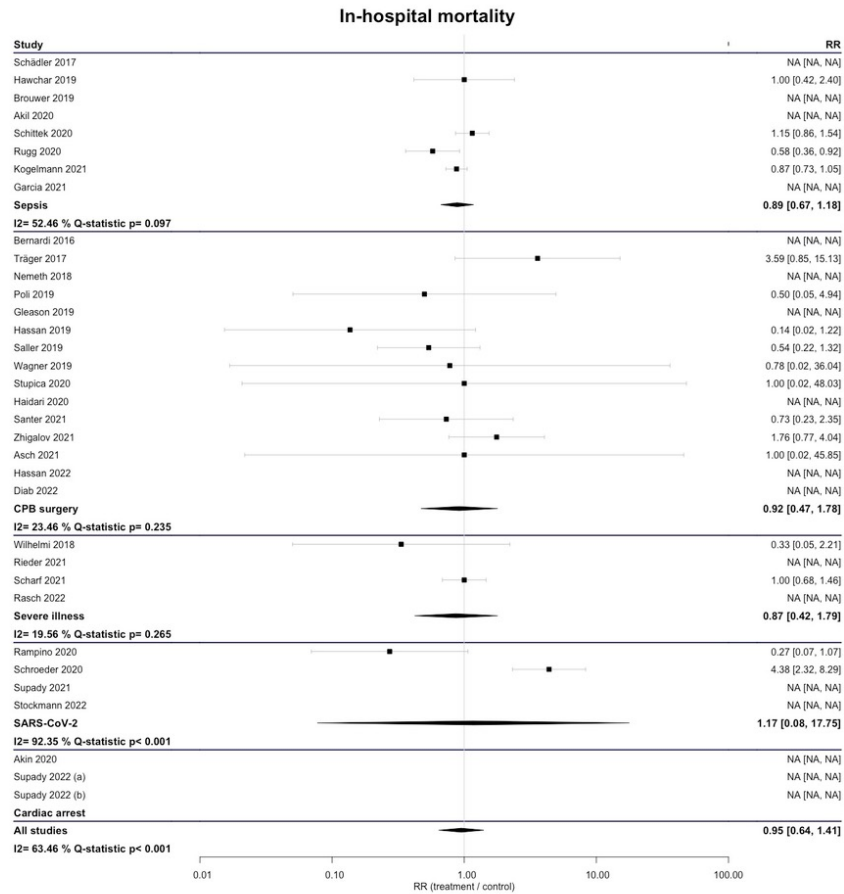


## Supplement Figures and Tables:

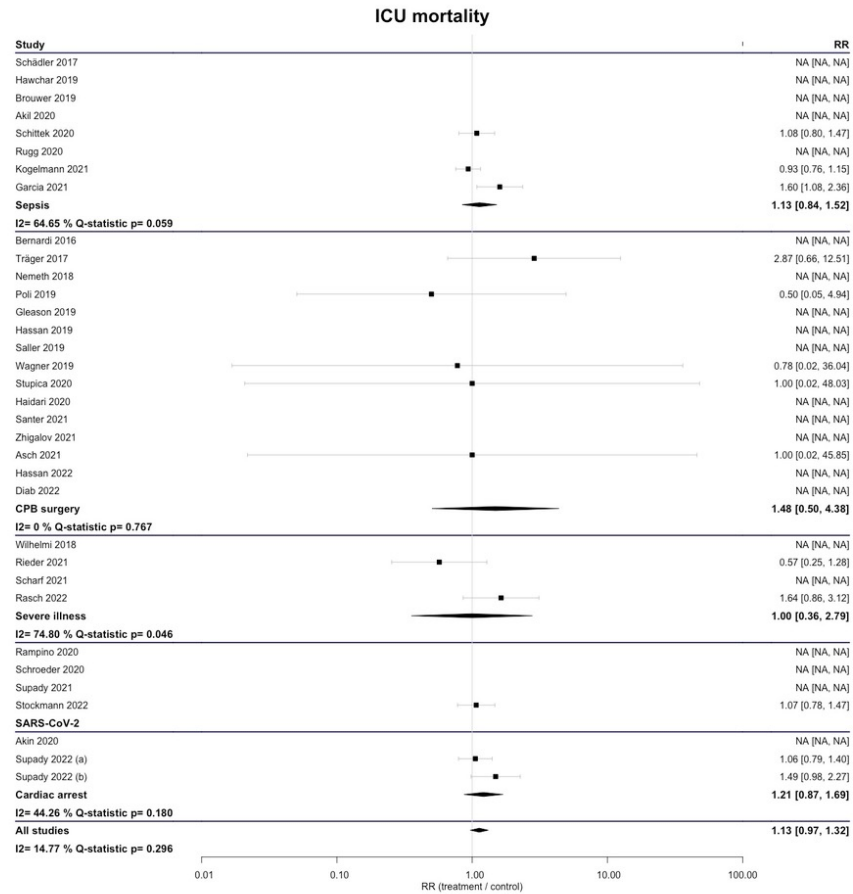
### Supplement Fig. 1: 30-day mortality by different diagnoses



Supplement Fig. 2: In-hospital mortality by different diagnoses



Supplement Fig. 3: ICU mortality by different diagnoses



**Supplement Fig. 4: Risk of Bias in Non-randomized Studies of Interventions**

Study	Risk of bias domains							Overall
	D1	D2	D3	D4	D5	D6	D7	
Nemeth 2018	⊗	+	+	+	+	+	-	⊗
Brouwer 2019	-	+	-	+	+	+	-	-
Saller 2019	-	+	-	+	+	+	-	-
Rugg 2020	-	+	-	+	+	+	+	-
Akin 2020	-	+	-	+	+	+	-	-
Santer 2021	-	+	-	+	+	+	+	-
Rieder 2021	⊗	+	-	+	+	+	-	⊗
Zhigalov 2021	-	+	-	+	+	+	-	-
Garcia 2021	-	+	+	+	+	+	-	-
Supady 2022 (a)	-	+	-	+	+	+	-	-
Rasch 2022	-	+	+	+	+	+	+	-
Träger 2017	⊗	+	-	+	+	+	-	⊗
Wilhelmi 2018	⊗	+	-	+	+	+	-	⊗
Hassan 2019	⊗	+	-	+	+	+	-	⊗
Haidari 2020	⊗	+	-	+	+	+	-	⊗
Akil 2020	⊗	+	+	+	+	+	-	⊗
Schittek 2020	⊗	+	+	+	+	+	⊗	⊗
Rampino 2020	⊗	+	-	+	+	+	-	⊗
Schroeder 2020	⊗	+	-	+	+	+	-	⊗
Scharf 2021	⊗	+	-	+	+	+	-	⊗
Kogelmann 2021	⊗	+	-	+	+	+	+	⊗
Hassan 2022	⊗	+	-	+	+	+	-	⊗




Domains:  
D1: Bias due to confounding.  
D2: Bias due to selection of participants.  
D3: Bias in classification of interventions.  
D4: Bias due to deviations from intended interventions.  
D5: Bias due to missing data.  
D6: Bias in measurement of outcomes.  
D7: Bias in selection of the reported result.

Judgement  
⊗ Serious  
- Moderate  
+ Low

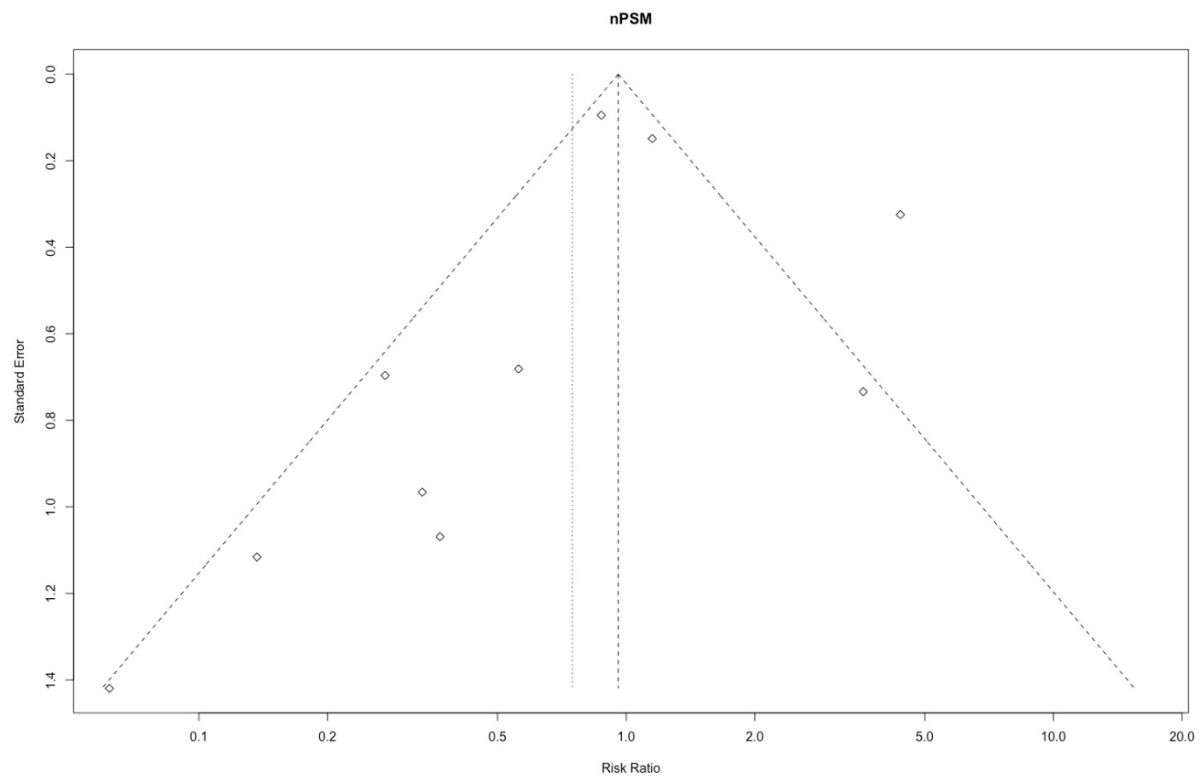
**Supplement Fig. 5: Risk of Bias in randomized trials**

Study	Risk of bias domains					Overall
	D1	D2	D3	D4	D5	
Bernardi 2016	+	-	X	+	-	X
Schädler 2017	X	+	-	+	+	X
Hawchar 2019	+	-	+	+	X	X
Poli 2019	+	-	+	+	+	-
Gleason 2019	X	-	+	+	+	-
Wagner 2019	+	X	X	+	-	X
Stupica 2020	+	-	X	+	X	X
Supady 2021	+	+	+	+	+	+
Asch 2021	+	X	X	+	-	X
Stockmann 2022	+	-	+	+	+	-
Supady 2022 (b)	+	+	+	+	X	X
Diab 2022	+	+	+	+	+	+

Domains:  
D1: Bias arising from the randomization process.  
D2: Bias due to deviations from intended intervention.  
D3: Bias due to missing outcome data.  
D4: Bias in measurement of the outcome.  
D5: Bias in selection of the reported result.

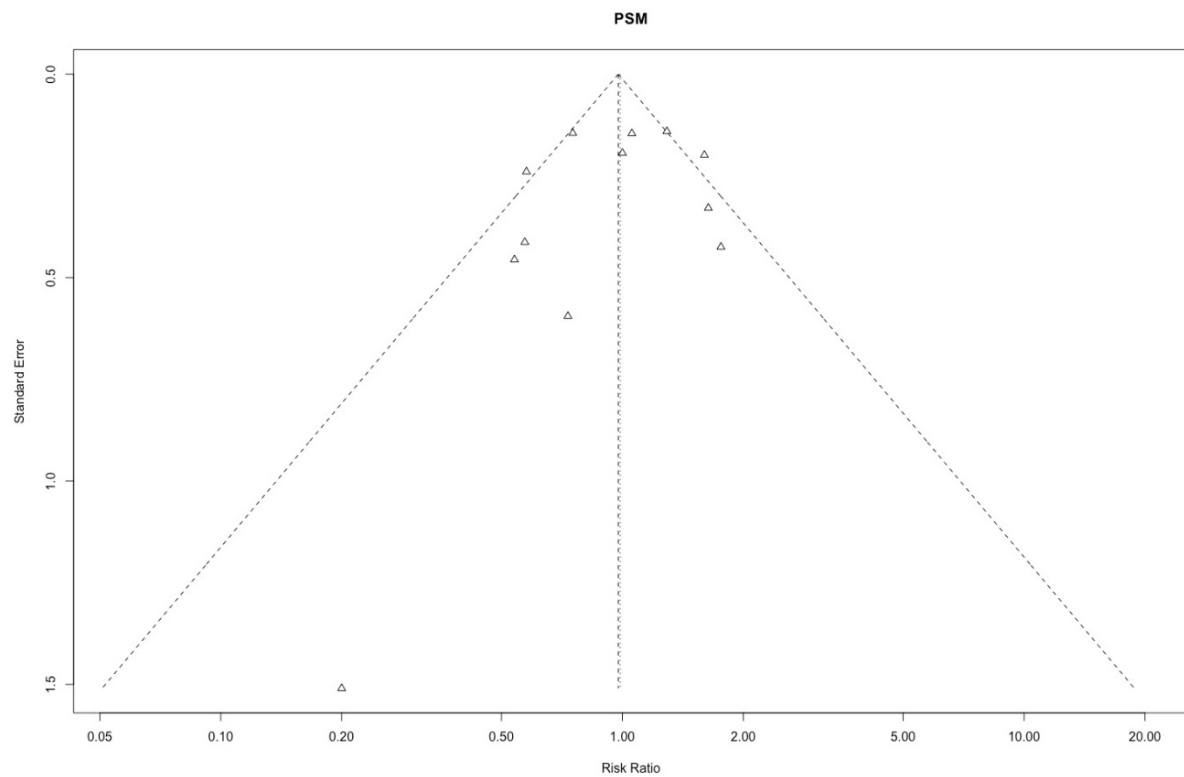
Judgement  
 High  
 Some concerns  
 Low

Supplement Fig. 6: Funnel plot for nPSM



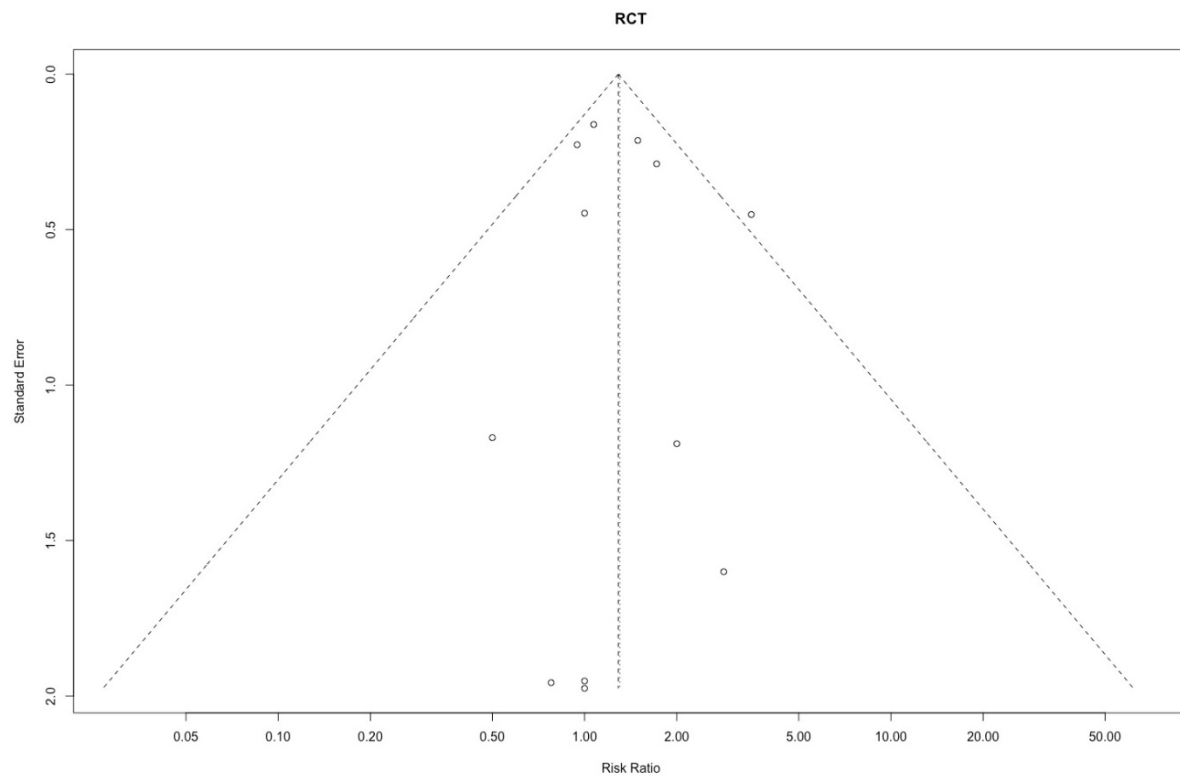
nPSM non propensity score matched cohort studies

Supplement Fig. 7: Funnel plot for PSM



PSM propensity score matched cohort studies

Supplement Fig. 8: Funnel plot for RCT



RCT randomized controlled trial



**Supplement Tab. 1: Baseline SOFA, SAPS-2, APACHE-2 and EuroScore-2 (difference: treatment group – control group)**

	SOFA		SAPS-2		APACHE-2			
	M±SD	Md [IQR]	M±SD	Md [IQR]	M±SD	Md [IQR]		
<b>Sepsis</b>	0.06 (± 1.36)	0.33 [-0.59; 1.24]	-1.44 (± 7.93)	-0.78 [-7.33; 5.78]	-2.84 (± 3.69)	-3.15 [-6.79; 0.49]		
<b>Severe illness</b>								
<b>SARS-CoV-2</b>								
<b>Cardiac arrest</b>	-0.15 (± 1)	-0.20 [-1.25; 0.84]	1.22 (± 4.1)	1.12 [-3.26; 5.49]				
<b>All studies</b>	-0.18 (± 0.72)	0.09 [-0.50; 0.68]	-0.65 (± 4.35)	0.20 [-3.14; 3.54]	-1.73 (± 2.54)	-1.89 [-4.68; 0.90]		

**Supplement Tab. 2: CRP and PCT before and first reported after treatment (difference: treatment group – control group)**

	CRP (mg/l) before treatment		CRP (mg/l) after treatment		PCT (ng/ml) before treatment		PCT (ng/ml) after treatment	
	M±SD	Md [IQR]	M±SD	Md [IQR]	M±SD	Md [IQR]	M±SD	Md [IQR]
<b>Sepsis</b>	1.81 (± 35.3)	-1.53 [-34.62, 31.56]	3.14 (± 76.74)	10.21 [-77.92; 98.33]	-7.60 (±7.76)	<b>-7.13 [-13.29; -0.97]</b>	5.09 (± 9.9)	5.69 [-3.42; 14.80]
<b>Severe illness</b>			46.49 (±49.19)	43.76 [-13.89; 101.41]				
<b>SARS-CoV-2</b>			-5.97 (± 43.51)	-5.37 [-53.95; 43.20]	<b>2.06 (± 1.88)</b>	0.61 [-1.09; 2.30]		
<b>Cardiac arrest</b>			-92.14 (±245.76)	-95.08 [-324.10; 133.94]	-1.02 (± 2.82)	-1.03 [-3.83; 1.78]		
<b>All studies</b>	6.89 (±28.01)	-0.30 [-31.21; 31.80]	9.08 (± 31,63)	7.26 [-28.30; 42.83]	-0.49 (± 2.07)	-0.46 [-1.91; 0.99]	4.42 (± 7.12)	1.36 [-2.27; 5.00]

Only the mean differences shown in red was significant at the 0.05 level. Otherwise no statistically significant differences occurred.

**Supplement Tab. 3: Lactate and IL-6 before and first reported after treatment (difference: treatment group – control group)**

	Lactate (mmol/l) before CytoSorb		Lactate (mmol/l) after CytoSorb		IL-6 before CytoSorb		IL-6 after CytoSorb	
	M±SD	Md [IQR]	M±SD	Md [IQR]	M±SD	Md [IQR]	M±SD	Md [IQR]
<b>Sepsis</b>	0.88 (±2.15)	0.99 [-0.20; 2.18]	0.29 (± 0.79)	0.29 [-0.50; 1.09]	443 (± 520)	-5962.57 [-20364.73; 8439.59]	-100 (±235)	-158.20 [-394.16; 77.76]
<b>Severe illness</b>	2.52 (± 2.93)	2.36 [-1.08; 5.79]	-0.76 (±2.06)	-0.83 [-3.21; 1.54]	19818 (±48381)	<b>5055.28 [1620.73; 8489.84]</b>		
<b>SARS-CoV-2</b>					-104 (±427)	-58.57 [-467.34; 350.21]		
<b>Cardiac arrest</b>	-0.31 (± 1.81)	-0.67 [-3.09; 1.74]	-1.08 (± 1.44)	-0.68 [-2.23; 0.87]	-226 (± 327)	-275.00 [-620.44; 70.44]		
<b>All studies</b>	0.60 (± 0.91)	0.60 [-0.32; 1.53]	0.08 (± 0.30)	0.06 [-0.26; 0.38]	121.31 (±526.13)	-19.89 [-500.92; 461.13]	-17,76 (±158.4)	12.26 [-112.44; 136.96]

Only the mean differences shown in red was significant at the 0.05 level. Otherwise no statistically significant differences occurred.