Supplementary

Table S1 Description of collected variables

Variable	Category	Description
Age	Interval scale	Documented in years. From clinic information system
BMI	Interval scale	Body mass index; calculated from weight (in kilograms) divided by size (in meters) as square root
Sex	Nominal, dichotomous	• Female • Male
SAPS II	Ordinal	Simplified acute physiology score II documented during intensive care. Score between 0 and 163 points. From clinic information system
Charlson comorbidity index	Ordinal	Score between 0 and 37. Clinical conditions and associated points based on medical records: • 1 each: myocardial infarction, congestive heart failure, peripheral vascular disease, dementia, cerebrovascular disease, chronic lung disease, connective tissue disease, ulcer, chronic liver disease, diabetes • 2 each: hemiplegia, moderate or severe kidney disease, diabetes with end organ damage, tumor, leukemia, lymphoma • 3 each: moderate or severe liver disease • 6 each: malignant tumor, metastasis, AIDS
Transplantation	Nominal	ECLS in relation to (before, during, after) transplantation: • None • Lung transplantation • Heart transplantation • Other
Coronary artery disease	Nominal, dichotomous	ICD diagnosis or history of myocardial infarction (electrocardiogram changes and/or enzyme changes): • Yes or no
Congestive heart failure	Nominal, dichotomous	ICD diagnosis of congestive heart failure: • Yes or no
Peripheral vascular disease	Nominal, dichotomous	ICD diagnosis including intermittent claudication or past bypass for chronic arterial insufficiency. History of gangrene or acute arterial insufficiency. Untreated thoracic or abdominal aneurysm (≥6 cm): • Yes or no
Cerebrovascular accidents	Nominal, dichotomous	ICD diagnosis or history of a cerebrovascular accident with minor or no residua and transient ischemic attacks: • Yes or no
Obstructive pulmonary disease	Nominal, dichotomous	ICD diagnosis of chronic obstructive pulmonary disease: • Yes or no
Diabetes mellitus	Nominal, dichotomous	ICD diagnosis of type I or II diabetes mellitus: • Yes or no
Liver disease	Nominal, dichotomous	Diagnosis of liver disease with cirrhosis and portal hypertension with/without variceal bleeding history. Chronic hepatitis or cirrhosis without portal hypertension: • Yes or no
Chronic kidney disease	Nominal, dichotomous	On dialysis, status post kidney transplant, uremia, or creatinine >3 mg/dL (0.27 mmol/L): • Yes or no
Hemoglobin	Interval scale	Laboratory value in in g/L
Lactate	Interval scale	Laboratory value in mmol/L
Myoglobin	Interval scale	Laboratory value in µg/L
Creatinine	Interval scale	Laboratory value in µmol/L
External insertion	Nominal, dichotomous	ECLS insertion by ECLS-Team of USZ, Switzerland in another hospital before transfer to USZ for definitive care: • Yes or no
Insertion technique	Nominal	Documented insertion of ECLS cannula: • Seldinger peripheral • Surgical peripheral, “cut-down”, vascular graft • Central
Further cardiac support system	Nominal, dichotomous	Cardiac support system (intra-aortic balloon pump or Impella® system) additional to ECLS: • Yes or no
ECLS outcome	Nominal	After ECLS system stop: • Dead • Successful weaning • Bridge to assist device • Bridge to transplant
Erythrocyte concentrate	Interval scale	Number of erythrocyte concentrate transfusions. From clinic information system
Fresh frozen plasma	Interval scale	Number of fresh frozen plasma transfusions. From clinic information system
Platelet concentrate	Interval scale	Number of platelet concentrate transfusions. From clinic information system
Major bleeding	Nominal, dichotomous	Condition during intensive care and ECLS support which requires blood product transfusion or surgery: • Yes or no
Sepsis	Nominal, dichotomous	ICD diagnosis documented during intensive care and ECLS support: • Yes or no
Intra-cranial bleeding	Nominal, dichotomous	ICD diagnosis documented during intensive care and ECLS support: • Yes or no
Stroke	Nominal, dichotomous	ICD diagnosis documented during intensive care and ECLS support: • Yes or no
Liver failure	Nominal, dichotomous	ICD diagnosis documented during intensive care and ECLS support. Includes NOT liver insufficiency or solely elevated liver laboratory values: • Yes or no
Renal replacement therapy	Nominal, dichotomous	Condition during intensive care and ECLS support which required (continuous) renal replacement therapy: • Yes or no
Ischemia extremities	Nominal, dichotomous	Documented ischemia of an extremity in relation to ECLS cannulation: • Yes or no
Ischemia intestinal	Nominal, dichotomous	Documented intestinal ischemia during intensive care and ECLS support. Also includes NOMI: • Yes or no
Laparotomy	Nominal, dichotomous	Condition during intensive care and ECLS support, which needs surgery with laparotomy including open abdomen treatment: • Yes or no
Open chest therapy	Nominal, dichotomous	Condition during intensive care and ECLS support: • Yes or no
Length ECLS	Interval scale	Duration of ECLS support in (calendar) days
Length ICU	Interval scale	Duration of intensive care in (calendar) days
Length of stay	Interval scale	Duration of overall hospital stay in (calendar) days. From clinic information system

BMI, body mass index; ECLS, extracorporeal life support; ICD, International Classification of Diseases; USZ, University Hospital Zurich; NOMI, non-occlusive mesenteric ischemia; ICU, intensive care unit.

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Table S2 Survivors and non-survivors with regard to insertion technique

ECLS	All indications		Postcardiotomy		Cardiopulmonary resuscitation		Refractory cardiogenic shock		Other indications	
	Survivors (n=302)	Non-survivors (n=377]	Survivors (n=63)	Non-survivors (n=152)	Survivors (n=51)	Non-survivors (n=108)	Survivors (n=124)	Non-survivors (n=110)	Survivors (n=64)	Non-survivors (n=7)
Insertion technique										
Seldinger peripheral	200 (66.2)	245 (65.0)	24 (38.1)	57 (37.5)	43 (84.3)	92 (85.2)	109 (87.9)	94 (85.5)	24 (37.5)	2 (28.6)
Surgical peripheral	44 (14.6)	52 (13.8)	16 (25.4)	25 (16.4)	6 (11.8)	9 (8.3)	15 (12.1)	16 (14.5)	7 (10.9)	2 (28.6)
Surgical central	58 (19.2)	80 (21.2)	23 (36.5)	70 (46.1)	2 (3.9)	7 (6.5)	0 (0.0)	0 (0.0)	33 (51.6)	3 (42.8)

ECLS, extracorporeal life support.

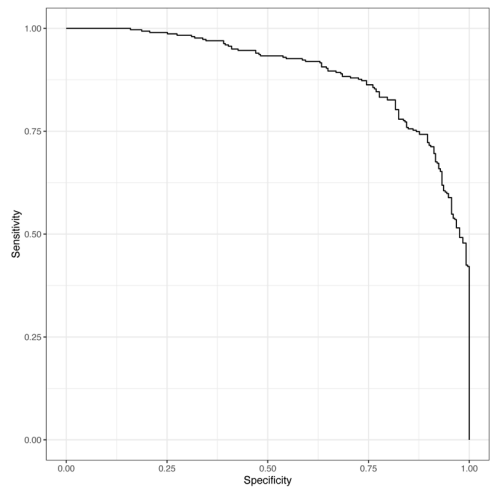

Figure S1 ROC curve for the multiple logistic regression model. The AUC was 0.89 (95% CI: 0.87–0.92). ROC, receiver operating characteristic; AUC, area und the curve; CI, confidence interval.

Table S3 Stratified logistic regression model for in-hospital mortality of ECLS by indication "postcardiotomy"

Predictor variables	OR	95% CI	P value
Intercept	0.00	0.00 to 1.00	0.07
Age (per year)	1.00	0.96 to 1.05	0.98
BMI (per kg/m^2)	0.99	0.87 to 1.12	0.86
SAPS II (per point)	1.04	1.00 to 1.08	0.05
Baseline laboratory values			
Lactate (per mmol/L)	1.06	0.92 to 1.24	0.43
Hemoglobin (per g/L)	1.02	0.99 to 1.04	0.23
Myoglobin (per µg/L)	1.00	1.00 to 1.00	0.43
Creatinine (per µmol/L)	1.00	1.00 to 1.01	0.42
Transfusions			
Red blood cells (unit/day)	1.44	0.97 to 2.73	0.14
Fresh frozen plasma (unit/day)	19.63	4.04 to 127.08	<0.001
Platelet concentrate (unit/day)	1.38	0.73 to 2.71	0.32
Liver failure	2.47	0.68 to 9.79	0.18
Length ECLS (per day)	1.1	0.98 to 1.26	0.13

ECLS, extracorporeal life support; OR, odds ratio; CI, confidence interval; BMI, body mass index; SAPS II, simplified acute physiology score II.

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Table S4 Stratified logistic regression model for in-hospital mortality of ECLS by indication "refractory cardiogenic shock"

Predictor variables	OR	95% CI	P value
Intercept	0.68	0.00 to 822.7	0.91
Age (per year)	1.03	1.00 to 1.07	0.04
BMI (per kg/m^2)	1.00	0.93 to 1.06	0.90
SAPS II (per point)	1.00	0.98 to 1.03	0.79
Baseline laboratory values			
Lactate (per mmol/L)	0.97	0.87 to 1.08	0.57
Hemoglobin (per g/L)	1.00	0.99 to 1.02	0.74
Myoglobin (per µg/L)	1.00	1.00 to 1.00	0.35
Creatinine (per µmol/L)	1.00	1.00 to 1.01	0.27
Transfusions			
Red blood cells (unit/day)	2.08	1.41 to 3.23	<0.001
Fresh frozen plasma (unit/day)	1.25	0.58 to 3.83	0.64
Platelet concentrate (unit/day)	1.71	1.14 to 2.99	0.03
Liver failure	2.54	0.75 to 9.29	0.14
Length ECLS (per day)	1.03	0.98 to 1.08	0.18

ECLS, extracorporeal life support; OR, odds ratio; CI, confidence interval; BMI, body mass index; SAPS II, simplified acute physiology score II.

Table S5 Stratified logistic regression model for in-hospital mortality of ECLS by indication "cardiopulmonary resuscitation"

Predictor variables	OR	95% CI	P value
Intercept	0.00	0.00 to 3.41	0.11
Age (per year)	1.03	1.00 to 1.07	0.09
BMI (per kg/m^2)	1.01	0.91 to 1.13	0.82
SAPS II (per point)	1.01	0.98 to 1.04	0.42
Baseline laboratory values			
Lactate (per mmol/L)	1.02	0.92 to 1.14	0.69
Hemoglobin (per g/L)	0.99	0.97 to 1.00	0.13
Myoglobin (per µg/L)	1.00	1.00 to 1.00	0.08
Creatinine (per µmol/L)	1.00	0.99 to 1.00	0.49
Transfusions			
Red blood cells (unit/day)	1.42	1.02 to 2.27	0.08
Fresh frozen plasma (unit/day)	1.24	0.62 to 3.39	0.64
Platelet concentrate (unit/day)	1.83	1.02 to 3.74	0.06
Liver failure	5.74	0.90 to 61.65	0.09
Length ECLS (per day)	0.96	0.87 to 1.05	0.39

ECLS, extracorporeal life support; OR, odds ratio; CI, confidence interval; BMI, body mass index; SAPS II, simplified acute physiology score II.

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