Appendix C: Data Collection Form ECMOCARD

EOT ICU Admis

UPON ICU ADMISSION – Please complete the below data as of the date and time of the patient's admission to the ICU		
	Is this patient's data being collected using the Full or Basic daily data forms?	Please select which daily data format this patient's record will use. **'FULL' daily data** Complete the EOT Daily form every day of mechanical ventilation (ie. from mechanical ventilation commencement (intubation) to discontinuation of mechanical ventilation (extubation)). **'BASIC' daily data** Complete the EOT Daily form: 1. Four (4) days after ICU admission (only if the patient is mechanically ventilated at that time) 2. Upon commencement of mechanical ventilation 3. Upon ECMO commencement 4. Upon ECMO discontinuation 5. Upon mechanical ventilation discontinuation.
	Patient's UK CCP ID Number	Please enter this patient's UK CCP ID number.
	Date of ICU admission	Only enter date in DD/MM/YYYY format from 14/12/2019.
1.1	Height	Height on admission to ICU in centimetres. If this data has already been entered into the 'Signs and Symptoms' section of the ISARIC CRF, please DO NOT re-enter the data here. Leave this '1.1 Height' box blank.
1.2	Body Weight	Weight on admission to ICU in kilograms. If this data has already been entered into the 'Signs and Symptoms" section of the ISARIC CRF, please DO NOT re-enter the data here. Leave this '1.2 Body Weight' box blank.
1.3a	Arterial Hypertension	Please select Yes or No. Arterial hypertension is defined by the chronic use of therapy for the indication of blood pressure-lowering, prior to hospital admission.

		If this data has already been entered into the 'Co-Morbidities & Risk Factors' section of the ISARIC CRF, please DO NOT re-enter the data here. Leave this '1.3 Hypertension' box blank.
1.3b	Chronic anti-hypertensive therapy	If 'Yes' to 1.3, please select up to three (3) types of anti-hypertensive medications the patient was receiving prior to hospital admission. If 'No' to 1.3, please select 'Not applicable'. If 'ACE inhibitors' and 'Angiotensin II receptor antagonist' data has already been entered in the 'Pre-Admission Medication' section of the ISARIC CRF, please DO NOT re-enter the data here. Leave these boxes blank.
1.4	Pre-hospital Admission creatinine Available	Select yes or no
1.4a	Pre-hospital Admission Creatinine	Document value in mg/dL or umol/L if available
1.5	Gastrointestinal and Pancreatic Comorbidities	Select yes or no. Gastrointestinal and pancreatic comorbidities are restricted to: • Example A: Ulcerative colitis • Example B: Pancreatic cancer Comment on REDCap database if applicable.
1.6	Hepatic and Biliary Comorbidities	Select yes or no. Hepatic and biliary comorbidities are restricted to: • Example A: Cirrhosis • Example B: Primary biliary cholangitis Comment on REDCap database if applicable.
1.7	Haematologic and spleen comorbidities	Select yes or no. Haematologic and spleen comorbidities are restricted to: • Example A: Leukaemia

		• Example B: Asplenia Comment on REDCap database if applicable.
1.8	Immunological and transplant comorbidities	Select yes or no. Immunological and transplant comorbidities are restricted to: • Example A: systemic lupus erythematosus • Example B: Previous heart transplant Comment on REDCap database if applicable.
1.9	Endocrinological Comorbidities	Select yes or no. Endocrinological comorbidities are restricted to: • Example A: Diabetes • Example B: Hypothyroidism Comment on REDCap database if applicable.
1.10	Genito-Urinary Comorbidities	Select yes or no. Genito-urinary comorbidities are restricted to: • Example A: Chronic kidney failure • Example B: Interstitial cystitis Comment on REDCap database if applicable.
1.11	Chronic Alcohol Abuse	Select yes or no. 'Chronic' is defined as continual excessive alcohol consumption as defined as frequent binge drinking (more than 4 drinks per day for woman or 5 drinks per day for men) in the 6 months prior to this ICU presentation. Comment on REDCap database if applicable.
1.12	Intravenous Drugs Abuse	Select yes or no. Use of intravenous drug abuse in the 6 months prior to this ICU presentation. Comment on REDCap database if applicable.
1.13	Immuno-Competent	Select yes or no. Yes = immunocompetent; No = immune-incompetent.

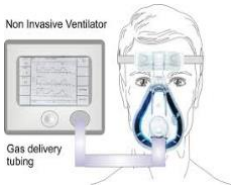
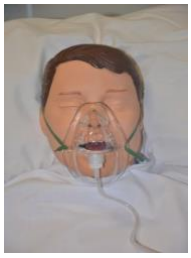
		'Immuno-incompetent' examples: • Example A: Use of immunosuppressant drugs • Example B: Acquired immunodeficiency syndrome Comment on REDCap database if applicable.
1.14	APACHE II Score	At the time of the patient's admission to ICU. Only enter score numbers from 0-71. An APACHE II calculator can be found at https://www.mdcalc.com/apache-ii-score If the APACHE II Score is unable to be calculated, please select 'Not Available'.
1.15	SOFA Score	At the time of the patient's admission to ICU. Only enter score numbers from 0-24. A SOFA score calculator can be found at https://www.mdcalc.com/sequential-organ-failure-assessment-sofa-score If the SOFA Score is unable to be calculated, please select 'Not Available'.
BLOOD GAS ANALYSIS (Qs 1.16 – 1.21) – Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to ICU admission. 'Worst' blood gas is defined as the blood gas with the lowest PaO2/FiO2 ratio.		
1.16	Arterial pH in the last 6 hours	Record pH to the nearest three decimal places. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to ICU admission. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only values between 6.500-7.600. If arterial pH was not measured in the 6 hours before the patient's admission to the ICU, please select 'Not available'.
1.17	Arterial partial pressure of oxygen (PaO_2) in the last 6 hours	Record PaO_2 in mmHg or kPa. Round to the nearest one decimal place.

		Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to ICU admission. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from 10-500 mmHg or 1.3 – 66.7 kPa. If PaO_2 was not measured in the 6 hours before the patient's admission to the ICU, please select 'Not available'.
1.18	Arterial partial pressure of carbon dioxide ($PaCO_2$) in the last 6 hours	Record $PaCO_2$ in mmHg or kPa. Round to the nearest one decimal place. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to ICU admission. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from 10-100 mmHg or 1.3-13.3 kPa. If $PaCO_2$ was not measured in the 6 hours before the patient's admission to the ICU, please select 'Not available'.
1.19	Arterial HCO_3 in the last 6 hours	Record bicarbonate measurement in mmol/L or mEq/L. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to ICU admission. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from 1-50. If HCO_3 was not measured in the 6 hours before the patient's admission to the ICU, please select 'Not available'.
1.20	Arterial base excess in the last 6 hours	Record base excess measurement in mmol/L. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to ICU admission. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from -50 – +50. If base excess was not measured in the 6 hours before the patient's admission to the ICU, please select 'Not available'.
1.21	Lactate in the last 6 hours	Record arterial lactate in mmol/L.

		Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to ICU admission. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from 0-200. If arterial lactate was not measured in the 6 hours before the patient's admission to the ICU, please select 'Not available'.
1.22	Troponin in the last 12 hours	Please enter the highest troponin levels in the last 12 hours in either ng/mL or ng/L. Please enter up to two (2) different types of troponin levels. If troponin was not measured, please select 'Not available'.
1.23	Cardiac BNP in the last 12 hours	Please enter the highest cardiac BNP in the last 12 hours in picograms/mL. If cardiac BNP was not measured, please select 'Not available'.
1.24	Upon ICU admission, did the patient present with cutaneous manifestations?	If it is not known whether or not the patient presented with cutaneous manifestations, please select 'Not available'.
	If yes to 1.24, type of cutaneous manifestations	Please specify what type of cutaneous manifestations the patient presents with. Please select up to three (3) options.
	If yes to 1.24, please specify the involved regions.	Please specify what regions are involved in the cutaneous manifestations. Please select up to three (3) options.

EOT Mech Vent

UPON COMMENCEMENT OF MECHANICAL VENTILATION - 'Mechanical ventilation' includes invasive mechanical ventilation via an endotracheal tube or tracheostomy only. Importantly, this module will be active only when you click 'YES' in the field '1.17 Invasive ventilation' of the SPRINT-SARI form.		
2.1	Date of Start of Mechanical Ventilation	Date format is dd-mm-yyyy 'Mechanical ventilation' includes invasive mechanical ventilation via an endotracheal tube or tracheostomy only.
2.2	Site of Intubation	Select where intubation took place; Outside hospital Intensive Care Unit Emergency Department Hospital Ward Different Hospital then patient was transferred Other
2.3	Type of Intubation	Select type of intubation; Elective (patient is conscious but deteriorating and requires planned intubation). Emergent (under emergency circumstances, airway under immediate threat)
2.4	Cardiac Arrest	Please enter Yes or No. Answer 'Yes' if the patient had a cardiac arrest 2 hours before or after endotracheal intubation, answer 'No' if the patient did not have a cardiac arrest within this timeframe.

2.5	Ventilatory Support Before Intubation	Select ventilatory support immediately before intubation, if not known please select not available. High-Flow Oxygen ventilation:  Mask Non-invasive Ventilation (NIV)  Full Face-Mask Non-invasive Ventilation (NIV- mask covers full face including eyes)  Helmet Non-Invasive Ventilation (NIV Helmet/hood)  Simple Face Mask Oxygen Therapy (Hudson mask)  Venturi Mask Oxygen Therapy

		 Non-Re-Breather Face Mask Oxygen Therapy  Nasal Prongs Oxygen Therapy 
BLOOD GAS ANALYSIS (Qs 2.6 – 2.11) – Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of mechanical ventilation. 'Worst' blood gas is defined as the blood gas with the lowest PaO2/FiO2 ratio.		
2.6	Arterial pH in the 6 hours before start of MV.	Record pH to the nearest three decimal places. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of mechanical ventilation. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only values between 6.500-7.600. If arterial pH was not measured in the 6 hours prior to commencement of mechanical ventilation, please select 'Not available'.

2.7	Arterial partial pressure of oxygen (PaO_2) (mmHg) in the 6 hours before the start of MV.	Record PaO_2 in mmHg or kPa. Round to the nearest one decimal place. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of mechanical ventilation. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from 20-500 mmHg or 2.7-66.7 kPa. If PaO_2 was not measured in the 6 hours before commencement of mechanical ventilation, please select 'Not available'.
2.8	Arterial partial pressure of carbon dioxide	Record $PaCO_2$ in mmHg or kPa. Round to the nearest whole number. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of mechanical ventilation. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only in numbers from 10-100mmHg or 1.3-13.3kPa. If $PaCO_2$ was not measured in the 6 hours before commencement of mechanical ventilation, please select 'Not available'.
2.9	Arterial HCO3 in the 6 hours before the start of MV.	Record bicarbonate measurement in mmol/L or mEq/L. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of mechanical ventilation. 'Worst'

		is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from 1-50. If HCO_3 was not measured in the 6 hours before commencement of mechanical ventilation, please select 'Not available'.
2.10	Arterial base excess in the 6 hours before start of MV.	Record base excess measurement in mmol/L. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of mechanical ventilation. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from -50 – +50. If base excess was not measured in the 6 hours before commencement of mechanical ventilation, please select 'Not available'.
2.11	Arterial lactate in the 6 hours before the start of MV.	Record arterial lactate in mmol/L. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of mechanical ventilation. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from 0-200. If arterial lactate was not measured in the 6 hours before commencement of mechanical ventilation, please select 'Not available'.
2.12	Use of continuous renal replacement therapy before start of MV.	Document if patient is receiving continuous renal replacement therapy in the 6 hours before commencement of mechanical ventilation.

		Select yes or no.
2.13	Use of vasoactive drugs before start of MV	Document if patient is receiving vasoactive drugs therapy in the 6 hours prior to MV. Select yes or no. Examples of vasoactive drugs: • Dopamine • Noradrenaline • Dobutamine • Milrinone • Adrenaline
2.14	Use of cardiac assist devices before start of MV	Document if patient has a cardiac assist device in the 6 hours prior to MV commencement. Select yes or no. Examples of cardiac assist devices: • left ventricular assist device (LVAD) • Intra-aortic balloon pump (IABP) • Pulsatile ventricular assist device (pVAD)
2.15.1	Type 1 Antibiotic	Select antibiotic therapy in the 6 hours prior to MV: ☐ Amikacin ☐ Amoxicillin ☐ Amoxicillin + Clavulanate ☐ Ampicillin ☐ Ampicillin + Sulbactam ☐ Atovaquone ☐ Azithromycin ☐ Aztreonam ☐ Bacampicillin ☐ Bacitracin ☐ Capreomycin ☐ Carbenicillin indanyl sodium ☐ Cefaclor ☐ Cefadroxil

		☐ Cefamandole ☐ Cefazolin ☐ Cefdinir ☐ Cefditoren ☐ Cefepime ☐ Cefixime ☐ Cefmetazole ☐ Cefonicid ☐ Cefoperazone ☐ Cefotaxime ☐ Cefotetan ☐ Cefoxitin ☐ Cefpodoxime Proxetil ☐ Cefprozil ☐ Ceftazidime ☐ Ceftazidime/Avibactam ☐ Ceftibuten ☐ Ceftizoxime ☐ Ceftobiprole ☐ Ceftolozane/Tazobactam ☐ Ceftriaxone ☐ Cefuroxime ☐ Cephalexin ☐ Cephalothin ☐ Cephapirin ☐ Cephradine ☐ Chloramphenicol ☐ Cinoxacin ☐ Ciprofloxacin ☐ Clarithromycin ☐ Clindamycin ☐ Cloxacillin ☐ Colistimethate ☐ Cycloserine ☐ Daptomycin

		☐ Demeclocycline ☐ Dicloxacillin ☐ Dirithromycin ☐ Doripenem ☐ Linezolid ☐ Lomefloxacin ☐ Loracarbef ☐ Mafenide ☐ Meropenem ☐ Methenamine hippurate ☐ Methicillin ☐ Metronidazole ☐ Mezlocillin ☐ Minocycline ☐ Moxifloxacin ☐ Mupirocin ☐ Nafcillin ☐ Nalidixic Acid ☐ Neomycin ☐ Netilmicin ☐ Nitrofurantoin ☐ Nitrofurazone ☐ Norfloxacin ☐ Novobiocin ☐ Ofloxacin ☐ Oxacillin ☐ Oxytetracycline ☐ Penicillin ☐ Piperacillin ☐ Piperacillin + Tazobactam ☐ Podofilox ☐ Polymyxin B ☐ Quinupristin + Dalfopristin ☐ Retapamulin ☐ Rifapentine

		☐ Rifaximin ☐ Saturated Solution of Potassium Iodide (SSKI) ☐ Sparfloxacin ☐ Spectinomycin ☐ Streptomycin ☐ Sulfadiazine ☐ Sulfamethoxazole ☐ Sulfisoxazole ☐ Sulphur, precipitated in petrolatum ☐ TCA (trichloroacetic acid), BCA (bichloroacetic acid). ☐ Teicoplanin ☐ Telavancin ☐ Telithromycin ☐ Terbinafine ☐ Tetracycline ☐ Ticarcillin ☐ Ticarcillin + Clavulanic Acid ☐ Tigecycline ☐ Tobramycin ☐ Trimethoprim ☐ Trimethoprim + Sulfamethoxazole ☐ Trovafloxacin ☐ Vancomycin
2.15.2	Type 2 Antibiotic	Same as above
2.15.3	Type 3 Antibiotic	Same as above
2.15.4	Type 4 Antibiotic	Same as above
2.15.5	Type 5 Antibiotic	Same as above. If the patient received more than 5 different antibiotics in the 6 hours before mechanical ventilation commencement, please only list the first 5 the patient received in order of prescription.

EOT START ECMO

UPON COMMENCEMENT OF ECMO. Importantly, this module will be active only when you click 'YES' in the field "1.18 ECLS?' of the SPRINT-SARI form.		
3.1	Date of start of ECMO	Date format is dd-mm-yyyy ECMO start is defined as commencement of the ECMO blood pump.
3.2	Is this patient enrolled in the EXCEL study?	The EXCEL study is the "The EXCEL Study: A comprehensive national registry on the treatment and outcomes of patients requiring ECMO" (NCT03793257).
3.3	If yes to 3.2, what is the patient's EXCEL study number?	Please enter the patients unique EXCEL study identification number.
3.4	Is this patient enrolled in the ELSO Registry?	Please answer 'Yes' or 'No'
3.5	If yes to 3.4, what is the patient's ELSO Registry number?	Please enter the patient's unique ELSO Registry identification number.
3.6	Location of ECMO Cannulation	Select the location of where patient was cannulated. Options are: • Same Hospital • Other Hospital, then patient was retrieved and transferred Comment on REDCap database if applicable.
3.7	Type and manufacturer of centrifugal blood pump driven circuit	Please enter text describing the name and manufacturer of the ECMO circuit.
3.8	Type and manufacturer of Low-Resistance Oxygenator	Please enter text describing the name and manufacturer of the ECMO oxygenator.
3.9	Type Of ECMO	Select which type of ECMO patient is receiving. Options are:

		• Venous-venous • Venous-arterial
3.10	Drainage cannula insertion site	Select the cannulation site for access/drainage peripheral access. Options are: • Left femoral vein • Left internal jugular vein • Right femoral vein • Right internal jugular vein
3.10a	Drainage cannula size	Please select 'Yes' (size available) or 'No' (size unavailable).
3.10b	Drainage cannula size	Please enter the size of the drainage cannula in Fr. Please only enter numbers between 5 and 30.
3.11	Return cannula insertion site	Select the cannulation site for return peripheral access. Options are: • Left femoral vein • Left internal jugular vein • Right femoral vein • Right internal jugular vein • Left femoral artery • Right femoral artery
3.11a	Return cannula size	Please select 'Yes' (size available) or 'No' (size unavailable).
3.11b	Return cannula size	Please enter the size of the return cannula in Fr. Please only enter numbers between 5 and 30.

TREATMENT PRIOR TO COMMENCEMENT OF ECMO – Please enter the below data from within 6 hours of ECMO commencement.		
3.12	Cardiac arrest before start of ECMO	Please select either Yes or No. Answer 'Yes' if the patient had a cardiac arrest 2 hours before or after ECMO commencement, answer 'No' if the patient did not have a cardiac arrest within this timeframe.
3.13	Use of prone position before start of ECMO	Please select Yes or No. Select Yes is the patient was proned in the 6 hours before commencement of ECMO. Select No if the patient was not proned prior to commencement of ECMO, or if the patient was proned outside the 6 hour window prior to ECMO commencement.
3.14	Use of Neuromuscular Blockade before start of ECMO	Did the patient receive neuromuscular blockers in the 6 hours prior to starting ECMO? Select Yes or No Examples of neuromuscular blockers: • Atracurium • Cisatracurium • Nimbex • Norcuron • Pancuronium • Pavulon • Rocuronium • Tracrium • Vecuronium • Zemuron

3.15	Use of recruitment manoeuvres before start of ECMO	Please select either Yes or No. Manoeuvres must have been used within 6 hours prior to commencing ECMO for Yes to be selected. Recruitment manoeuvres are defined as changes in ventilatory settings to increase delivered volume or airway pressure to reopen collapsed lung regions
3.16	Use of Inhaled Nitric Oxide before start of ECMO	Please select either Yes or No. The patient must have received inhaled Nitric Oxide (iNO) in the 6 hours before ECMO was started for Yes to be selected. If outside this timeframe or if the patient did not receive iNO at any point before commencement of ECMO, please select No.
3.17	Use of bicarbonate before start of ECMO	Please select either Yes or No. Select Yes if the patient received bicarbonate within the 6 hours before ECMO commencement. Select No if the patient did not receive bicarbonate before ECMO commencement or received it outside 6 hours before ECMO commencement.
3.18	Ventilatory Mode before start of ECMO	Please enter the mode of ventilation the patient was receiving immediately preceding the commencement of ECMO. If not known, please select 'Not available'.

MECHANICAL VENTILATION & BLOOD GAS ANALYSIS (Qs 3.19- 3.30) – Please document the 'worst' value in the 6 hours before the commencement of ECMO. 'Worst' means the values associated with the arterial blood gas with the lowest PaO2/FiO2 ratio. Please report ventilatory settings associated with the worst arterial blood gas.		
3.19	Inspiratory fraction of oxygen in the 6 hours before start of ECMO	Please enter the highest oxygen requirement as a percentage, not a decimal number. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of ECMO. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. For example, please enter 80%, not 0.8. Please enter numbers between 21 and 100.
3.20	Respiratory rate in the 6 hours before start of ECMO	Please enter the highest respiratory rate in breaths/min. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of ECMO. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Enter total respiratory rate (set rate plus spontaneous breaths). Please enter a number between 2-60.
3.21	Tidal Volume	Please enter the highest tidal volume in the 6 hours prior to ECMO commencement. Please document the values associated with the 'worst' blood gas analysis in

		the 6 hours prior to commencement of ECMO. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Please enter as ml/kg of ideal body weight. Ideal Body Weight formula: Male patients: 50 + (0.91 x [height in cm – 152.4]) Female patients: 45.5 + (0.91 x {height in cm – 152.4]) Please enter a number between 1.0 and 14.0. If unable to be calculated, please select Not available.
3.22	Positive end expiratory pressure in the 6 hours before the start of ECMO.	Document the highest set PEEP. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of ECMO. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Record in cmH2O. Please enter numbers between 0 and 25.
3.23	Peak airway pressure in the 6 hours before the start of ECMO.	Document the highest Peak Airway Pressure in cmH_2O. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of

		ECMO. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Please enter values between 0 and 85.
3.24	Airway plateau pressure in the 6 hours before the start of ECMO.	Record in cmH2O Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of ECMO. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. If unable to be calculated, please select Not available.
3.25	Arterial pH in the 6 hours before start of ECMO.	Record pH to the nearest three decimal places. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of ECMO. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only values between 6.500-7.600. If arterial pH was not measured in the 6 hours before ECMO commencement, please select 'Not available'.
3.26	Arterial partial pressure of oxygen (PaO_2) (mmHg) in the 6 hours before the start of ECMO.	Record PaO_2 in mmHg or kPa. Round to the nearest one decimal place. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of

		ECMO. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from 20-500 mmHg or 2.7-66.7kPa. If PaO_2 was not measured in the 6 hours before commencement of ECMO, please select 'Not available'.
3.27	Arterial partial pressure of carbon dioxide ($PaCO_2$) in the 6 hours before the start of ECMO.	Record $PaCO_2$ in mmHg or kPa. Round to the nearest whole number. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of ECMO. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only in numbers from 10-100 mmHg or 1.3-13.3 kPa. If $PaCO_2$ was not measured in the 6 hours before commencement of ECMO, please select 'Not available'.
3.28	Arterial HCO3 in the 6 hours before the start of ECMO.	Record bicarbonate measurement in mmol/L or mEq/L. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of ECMO. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from 1-50.

		If HCO_3 was not measured in the 6 hours prior to commencement of ECMO, please select 'Not available'.
3.29	Arterial base excess in the 6 hours before start of ECMO.	Record base excess measurement in mmol/L. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of ECMO. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from -50 – +50. If base excess was not measured in the 6 hours prior to commencement of ECMO, please select 'Not available'.
3.30	Arterial lactate in the 6 hours before the start of ECMO.	Record arterial lactate in mmol/L. Please document the values associated with the 'worst' blood gas analysis in the 6 hours prior to commencement of ECMO. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from 0-200. If arterial lactate was not measured in the 6 hours before start of ECMO, please select 'Not available'.
3.31	Use of the continuous renal replacement therapy before the start of ECMO.	Please select Yes or No. Select Yes if the patient received CRRT in the 6 hours prior to ECMO commencement. Select No otherwise.
3.32	Use of vasoactive drugs before the start of ECMO.	Select Yes or No.

		Select Yes if the patient received any of the below drugs within 6 hours of ECMO commencement. Vasoactive drugs include: • Adrenaline • Noradrenaline • Dopamine • Dobutamine • Isoprenaline • Dopexamine • Milrinone • Amrinone • Levosimendan • Phenylephrine • Metaraminol • Vasopressin • Digoxin
3.33	Use of cardiac assist device before start of ECMO.	Document if patient has a cardiac assist device in the 6 hours prior to ECMO commencement. Select yes or no. Examples of cardiac assist devices: • left ventricular assist device (LVAD) • Intra-aortic balloon pump (IABP) • Pulsatile ventricular assist device (pVAD)
3.34 & 3.35	Use of antibiotics before the start of ECMO	Please select Yes or No. Possible antibiotics include: ☐ Amikacin ☐ Amoxicillin ☐ Amoxicillin + Clavulanate

		☐ Ampicillin ☐ Ampicillin + Sulbactam ☐ Atovaquone ☐ Azithromycin ☐ Aztreonam ☐ Bacampicillin ☐ Bacitracin ☐ Capreomycin ☐ Carbenicillin indanyl sodium ☐ Cefaclor ☐ Cefadroxil ☐ Cefamandole ☐ Cefazolin ☐ Cefdinir ☐ Cefditoren ☐ Cefepime ☐ Cefixime ☐ Cefmetazole ☐ Cefonicid ☐ Cefoperazone ☐ Cefotaxime ☐ Cefotetan ☐ Cefoxitin ☐ Cefpodoxime Proxetil ☐ Cefprozil ☐ Ceftazidime ☐ Ceftazidime/Avibactam ☐ Ceftibuten ☐ Ceftizoxime ☐ Ceftobiprole ☐ Ceftolozane/Tazobactam ☐ Ceftriaxone ☐ Cefuroxime ☐ Cephalexin ☐ Cephalothin

		☐ Cephapirin ☐ Cephradine ☐ Chloramphenicol ☐ Cinoxacin ☐ Ciprofloxacin ☐ Clarithromycin ☐ Clindamycin ☐ Cloxacillin ☐ Colistimethate ☐ Cycloserine ☐ Daptomycin ☐ Demeclocycline ☐ Dicloxacillin ☐ Dirithromycin ☐ Doripenem ☐ Linezolid ☐ Lomefloxacin ☐ Loracarbef ☐ Mafenide ☐ Meropenem ☐ Methenamine hippurate ☐ Methicillin ☐ Metronidazole ☐ Mezlocillin ☐ Minocycline ☐ Moxifloxacin ☐ Mupirocin ☐ Nafcillin ☐ Nalidixic Acid ☐ Neomycin ☐ Netilmicin ☐ Nitrofurantoin ☐ Nitrofurazone ☐ Norfloxacin ☐ Novobiocin

		☐ Ofloxacin ☐ Oxacillin ☐ Oxytetracycline ☐ Penicillin ☐ Piperacillin ☐ Piperacillin + Tazobactam ☐ Podofilox ☐ Polymyxin B ☐ Quinupristin + Dalfopristin ☐ Retapamulin ☐ Rifapentine ☐ Rifaximin ☐ Saturated Solution of Potassium Iodide (SSKI) ☐ Sparfloxacin ☐ Spectinomycin ☐ Streptomycin ☐ Sulfadiazine ☐ Sulfamethoxazole ☐ Sulfisoxazole ☐ Sulphur, precipitated in petrolatum ☐ TCA (trichloroacetic acid), BCA (bichloroacetic acid). ☐ Teicoplanin ☐ Telavancin ☐ Telithromycin ☐ Terbinafine ☐ Tetracycline ☐ Ticarcillin ☐ Ticarcillin + Clavulanic Acid ☐ Tigecycline ☐ Tobramycin ☐ Trimethoprim ☐ Trimethoprim + Sulfamethoxazole ☐ Trovafloxacin ☐ Vancomycin

3.36	Chest x-ray within 24 hours pre or post- ECMO cannulation	Please select 'Yes' or 'No'. For example, if the patient was cannulated at 8pm (20:00hrs) on the 03/05/2020, please select 'Yes' if the patient had a chest x-ray between 8pm on the 02/05/2020 and 8pm on the 04/05/2020. Select 'No' if the patient did not have a chest x-ray taken within the above time period.
3.36a	If 'Yes' to 3.36, number of chest x-ray quadrants with infiltrates	Please select the number of quadrants identified on the chest x-ray as having infiltrates.

EOT Daily

4. DAILY CASE RECORD FORM

'FULL' daily data

Complete the daily form every day of mechanical ventilation (ie. from mechanical ventilation commencement (intubation) to discontinuation of mechanical ventilation (extubation)). **Please commence this data the day after the patient is intubated.**

'BASIC' daily data

Complete this daily form:

1. Four (4) days after ICU admission (only if the patient is mechanically ventilated at that time)
2. Upon commencement of mechanical ventilation
3. Upon ECMO commencement
4. Upon ECMO discontinuation
5. Upon mechanical ventilation discontinuation.

Please collect all daily data retrospectively, at least 24h after the day of assessment, since the worst parameters of the 24-h period of assessment need to be identified.

Importantly, parameters related to mechanical ventilation or ECMO will be active only when you click 'YES' in the field '1.17 Invasive ventilation?' or when you click 'YES' in the field '1.18 ECLS?', respectively, of the SPRINT-SARI form.

4.1	Date of observation	Document the date of the observation
4.2	Patient Position	'Full' daily data collection: Patient position applied most predominantly **in the last 24 hours** 'Basic' daily data collection: Patient position applied most predominantly **since the last EOT Daily form** If this is the 'Four days after ICU admission' timepoint, please collect the position applied most predominantly in the last 24 hours. Is the patient position supine or prone predominantly? If patient is in mild tilt positioning on their back, tick supine
4.3	Highest ECMO Flow rate in the last 24 hours	Document the flow rate. Record in L/min.
4.4	Highest ECMO gas flow rate in the last 24 hours	Document the highest gas flow rate. Record in L/min

4.5	ECMO Circuit change	Did the patient have their ECMO circuit changed? 'full' daily data collection: Circuit change **in the last 24 hours** 'basic' daily data collection: circuit change **since last EOT Daily from** If this is the "Four days after ICU admission" timepoint, please answer with reference to the 24 hours Select Yes or No
4.6	Use of neuromuscular blockade	Did the patient receive neuromuscular blockers? 'full' daily data collection: Neuromuscular blockade **in the last 24 hours** 'basic' daily data collection: Neuromuscular blockade **since last EOT Daily form** If this is the 'Four days after ICU admission' timepoint, please answer with reference to the 24 hoursSelect Yes or No Examples of neuromuscular blockers: • Atracurium • Cisatracurium • Nimbex • Norcuron • Pancuronium • Pavulon • Rocuronium • Tracrium • Vecuronium • Zemuron

4.7	Use of recruitment manoeuvres	Recruitment manoeuvres are defined as changes in ventilatory settings to increase delivered volume or airway pressure to reopen collapsed lung regions. 'Full' daily data collection: Recruitment manoeuvres **in the last 24 hours** 'Basic' daily data collection: Recruitment manoeuvres **since the last EOT Daily form** If this is the 'Four days after ICU admission' timepoint, please answer with reference to the last 24 hours. Please select either Yes or No. .
4.8	Use of inhaled nitric oxide	The patient must have received inhaled Nitric Oxide (iNO) in the last 24 hours for Yes to be selected. If outside this timeframe or if the patient did not receive iNO at any point during the 24 hours, please select No. 'Full' daily data collection: Inhaled nitric oxide **in the last 24 hours** 'Basic' daily data collection: Inhaled nitric oxide **since the last EOT Daily form** If this is the 'Four days after ICU admission' timepoint, please answer with reference to the last 24 hours. Please select either Yes or No.
4.9	Most frequent ventilatory mode in the last 24 hours	Document the most predominant ventilatory mode in the last 24 hours.
MECHANICAL VENTILATION & BLOOD GAS ANALYSIS (Qs 4.10 – 4.21) – Please document the 'worst' value in the last 24 hours. 'Worst' means all values associated with the arterial blood gas		

with the lowest PaO2/FiO2 ratio. Please report ventilatory settings associated with the worst arterial blood gas.		
4.10	Inspiratory fraction of oxygen in the last 24 hours	Please document the values associated with the 'worst' blood gas analysis in the last 24 hours. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. For example, please enter 80%, not 0.8. Please enter numbers between 21 and 100.
4.11	Respiratory rate in the last 24 hours	Please enter the highest respiratory rate in breaths/min. Please document the values associated with the 'worst' blood gas analysis in the last 24 hours. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Enter total respiratory rate (set rate plus spontaneous breaths). Please enter a number between 2-60.
4.12	Tidal Volume in the last 24 hours	Please document the values associated with the 'worst' blood gas analysis in the last 24 hours. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Please enter as ml/kg of ideal body weight. Ideal Body Weight formula:

		Male patients: 50 + (0.91 x [height in cm – 152.4]) Female patients: 45.5 + (0.91 x {height in cm – 152.4]) Please enter a number between 1.0 and 14.0. If unable to be calculated, please select Not available.
4.13	Positive end expiratory pressure in the last 24 hours.	Please document the values associated with the 'worst' blood gas analysis in the last 24 hours. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Record in cmH_2O. Please enter numbers between 0 and 25.
4.14	Airway plateau pressure in the last 24 hours	Please document the values associated with the 'worst' blood gas analysis in the last 24 hours. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Please enter numbers between 0 and 50.
4.15	Arterial pH in the last 24 hours.	Record pH to the nearest three decimal places. Please document the values associated with the 'worst' blood gas analysis in the last 24 hours. 'Worst' is defined as the

		blood gas with the lowest PaO2/FiO2 ratio. Only values between 6.500-7.600. If arterial pH was not measured in the last 24 hours, please select 'Not available'.
4.16	Arterial partial pressure of oxygen (PaO_2) (mmHg) in the last 24 hours.	Record PaO_2 in mmHg or kPa. Round to the nearest one decimal place. Please document the values associated with the 'worst' blood gas analysis in the last 24 hours. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from 20-500 or 2.7-66.7. If PaO_2 was not measured in the last 24 hours, please select 'Not available'.
4.17	Arterial partial pressure of carbon dioxide ($PaCO_2$) in the last 24 hours.	Record $PaCO_2$ in mmHg or kPa. Round to the nearest whole number. Please document the values associated with the 'worst' blood gas analysis in the last 24 hours. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only in numbers from 10-100 or 1.3 – 13.3 If $PaCO_2$ was not measured in the last 24 hours, please select 'Not available'.
4.18	Arterial HCO3 in the last 24 hours.	Record bicarbonate measurement in mmol/L or mEq/L.

		Please document the values associated with the 'worst' blood gas analysis in the last 24 hours. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from 1-50. If HCO_3 was not measured in the last 24 hours, please select 'Not available'.
4.19	Arterial base excess in the last 24 hours.	Record base excess measurement in mmol/L. Please document the values associated with the 'worst' blood gas analysis in the last 24 hours. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from -50 + 50. If base excess was not measured in the last 24 hours, please select 'Not available'.
4.20	Arterial lactate in the last 24 hours.	Record arterial lactate in mmol/L. Please document the values associated with the 'worst' blood gas analysis in the last 24 hours. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Only enter values from 0-200. If arterial lactate was not measured in the last 24 hours, please select 'Not available'.

		If this data has already been entered in the 'Daily Case Report Form – Laboratory Results' section of the ISARIC CRF, please DO NOT re-enter the data here. Please leave '4.20 Lactate' blank.
4.21	Creatinine in the last 24 hours	Document the worst creatinine in the last 24 hours. Please document the values associated with the 'worst' blood gas analysis in the last 24 hours. 'Worst' is defined as the blood gas with the lowest PaO2/FiO2 ratio. Record as mg/dL If creatinine has not been measured in the last 24 hours, please select Not available. If this data has already been entered in the 'Daily Case Report Form – Laboratory Results' section of the ISARIC CRF, please DO NOT re-enter the data here. Please leave '4.21 Creatinine' blank.
4.22	Use of continuous renal replacement therapy (CRRT)	Is the patient or has the patient received CRRT i *'Full' daily data collection: CRRT* ***in the last 24 hours*** *'Basic' daily data collection: CRRT* ***since the last EOT Daily form*** *If this is the 'Four days after ICU admission' timepoint, please answer with reference to the last 24 hours* Select Yes or No.
4.23-4.29	Use of vasoactive drugs	Select Yes or No.

		Select Yes if the patient received any of the below drugs within the last 24 hours. Vasoactive drugs include: • Adrenaline • Noradrenaline • Dopamine • Dobutamine • Isoprenaline • Dopexamine • Milrinone • Amrinone • Levosimendan • Phenylephrine • Metaraminol • Vasopressin Please enter the highest dose of each vasoactive medication received in the last 24 hours in mcg/kg/min. If the patient is on more than three different vasoactive medications, please list the three which have the highest doses.
4.30	Use of cardiac assist devices	'Full' daily data collection: Cardiac assist device use **in the last 24 hours** 'Basic' daily data collection: Cardiac assist device use **since the last EOT Daily form** If this is the 'Four days after ICU admission' timepoint, please answer with reference to the last 24 hours.Select Yes or No Examples of cardiac assist devices:

		• left ventricular assist device (LVAD) • Intra-aortic balloon pump (IABP) • Pulsatile ventricular assist device (pVAD)
4.31	Use of antibiotics	'Full' daily data collection: Antibiotics administered **in the last 24 hours** 'Basic' daily data collection: Antibiotics administered **since the last EOT Daily form** If this is the 'Four days after ICU admission' timepoint, please answer with reference to the last 24 hours. Select Yes or No. If yes, please list up to five antibiotics the patient is currently receiving. If the patient received more than 5 different antibiotics in the last 24 hours, please only list the first 5 the patient received in order of prescription.
4.32	Worst haemoglobin	Please enter the most deranged haemoglobin in the last 24 hours in g/dL. If haemoglobin not assessed in the last 24 hours, please select 'Not available'. If this data has already been entered in the 'Daily Case Report Form – Laboratory Results' section of the ISARIC CRF, please DO NOT re-enter the data here. Please leave '4.32 Haemoglobin' blank.

4.33	Worst white blood cells in the last 24 hours	Please enter the most deranged white blood cell levels in the last 24 hours in. If white blood cells not assessed in the last 24 hours, please select 'Not available'. If this data has already been entered in the 'Daily Case Report Form – Laboratory Results' section of the ISARIC CRF, please DO NOT re-enter the data here. Please leave '4.33 White Blood Cells' blank.
4.34	White blood cells unit	Please indicate the units of measure for the white blood cells.
4.35	Worst AST/SCGOT in last 24 hours	Please specify the most deranged AST/SCGOT value in the past 24 hours. If not measured in the last 24 hours, please select 'Not available'. If this data has already been entered in the 'Daily Case Report Form – Laboratory Results' section of the ISARIC CRF, please DO NOT re-enter the data here. Please leave '4.34 AST' blank.
4.36	Worst ALT/SGPT in last 24 hours	Please specify the most deranged ALT/SGPT value in the past 24 hours. If not measured in the last 24 hours, please select 'Not available'. If this data has already been entered in the 'Daily Case Report Form – Laboratory Results' section of the ISARIC

		CRF, please DO NOT re-enter the data here. Please leave '4.36 ALT' blank.
4.37	Anticoagulants	'Full' daily data collection: Anticoagulants administered **in the last 24 hours** 'Basic' daily data collection: Anticoagulants administered **since the last EOT Daily form** If this is the 'Four days after ICU admission' timepoint, please answer with reference to the last 24 hours. Select either Yes or No.
4.38	Type of anticoagulants	If yes to 4.37, please specify what type of anticoagulant has been used. Please select only one type. If the patient is receiving more than one type, please list the most predominant.
4.39	Transfused packed red blood cell concentrate	Has the patient received a transfusion of packed RBC? 'Full' daily data collection: PRBCs administered **in the last 24 hours** 'Basic' daily data collection: PRBCs administered **since the last EOT Daily form** If this is the 'Four days after ICU admission' timepoint, please answer with reference to the last 24 hoursSelect Yes or No.
4.40	Transfused platelets concentrate	Has the patient received a transfusion of platelet concentrate? 'Full' daily data collection: Platelets administered **in the last 24 hours**

		'Basic' daily data collection: Platelets administered **since the last EOT Daily form** If this is the 'Four days after ICU admission' timepoint, please answer with reference to the last 24 hours Select Yes or No.
4.41	Transfused fresh frozen plasma	Has the patient received a transfusion of FFP? 'Full' daily data collection: FFP administered **in the last 24 hours** 'Basic' daily data collection: Platelets administered **since the last EOT Daily form** If this is the 'Four days after ICU admission' timepoint, please answer with reference to the last 24 hours Select Yes or No.
4.42	Transfused cryoprecipitates	Has the patient received a transfusion of cryoprecipitate? 'Full' daily data collection: Cryoprecipitate administered **in the last 24 hours** 'Basic' daily data collection: Cryoprecipitate administered **since the last EOT Daily form** If this is the 'Four days after ICU admission' timepoint, please answer with reference to the last 24 hours Select Yes or No.

4.43 – 4.54	Infection complication	Please specify the source of the infectious complication and causative pathogen if known. If more than one pathogen is identified, please select the most predominant pathogen. Please list up to three infections. If more than three infections are currently active, please list the three most predominant.
4.55-4.58	Haemorrhagic complication	Please specify the source of the haemorrhagic complication. Please list up to two sources. If more than two sources are currently active, please list the two most predominant.
4.59	Other complication	List any other non-haemorrhagic complications.
4.60	Troponin in the last 24 hours	Please enter the highest troponin levels in the last 24 hours in either ng/mL or ng/L. Please enter up to two (2) different types of troponin levels. If troponin was not measured, please select 'Not available'. If Troponin I data has already been entered in the 'Daily Case Report Form – Laboratory Results' section of the ISARIC CRF, please DO NOT re-enter the data here. Please leave '4.59 Troponin I' blank.

4.61	Cardiac BNP in the last 24 hours	Please enter the highest cardiac BNP in the last 24 hours in picograms/mL. If cardiac BNP was not measured, please select 'Not available'.

EOT Final

Outcomes		
5.1	Date of ECMO discontinuation	Please enter the date ECMO was discontinued Format DD/MM/YYYY
5.2	Date of invasive mechanical ventilation discontinuation	Please enter the date invasive mechanical ventilation was discontinued. Invasive mechanical ventilation includes ventilation via an endotracheal tube or tracheostomy. Format DD/MM/YYYY
5.3	Date of ICU discharge	Please enter the date the patient was discharged from ICU. If the patient died whilst in ICU, their date of ICU discharge will be the same as their date of death. Format DD/MM/YYYY
5.4	Date of hospital discharge	Please enter the date the patient was discharged from hospital. If the patient died whilst in hospital, their date of hospital discharge will be the same as their date of death. Format DD/MM/YYYY
5.5	Date of death	Format DD/MM/YYYY If the patient did not die whilst in ICU or hospital, please select Not applicable.
5.6	Site of death	Please select the patient's location at their time of death.
5.7	Main cause of death	Please select the main cause of the patient's death.
5.8	Alive at 28 days post ICU admission?	Please select Yes or No
5.9	Final assessment notes	Please enter any further relevant information.

5.10	At any time post ICU admission and until ICU discharge, did the patient present new cutaneous manifestations?	Please select Yes or No. If this data is not available, please select Not available. Please select Yes only if the patient presented new cutaneous manifestation post ICU admission, or cutaneous manifestations different from those present upon ICU admission.
5.10a	If yes to 5.10, type of cutaneous manifestations	Please select up to three (3) options. If Other, please specify.
5.10b	If yes to 5.10, specify the involved regions	Please select up to three (3) options.
5.11	At any time post ICU admission and until ICU discharge, did the patient have a stroke?	Please select either 'Yes' or 'No'.
5.11a	If yes to 5.11, type of stroke	Please select up to two (2) options. If the type of stroke was unknown, please select 'Unknown'.
5.11b	If yes to 5.11, side of stroke	Please select the side of the stroke. Please select only one option. If the side was unknown, please select 'Unknown'.