

Case Record Form

Hemodynamic Resuscitation and Monitoring in Early Sepsis (HERMES Study)

An ISCCM research project



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A. SCREENING LOG

1. Inclusion criteria

- a. New admission (a patient who has not been in ICU in the last 7 days, can also be considered as a new admission)
 - YES
 - NO

- b. Is patient's age ≥ 18 years?
 - YES
 - NO

- c. Does the patient have suspected sepsis with hypotension? (Systolic BP <90 / MAP less than 65 mmHg OR Systolic BP ≥ 90 / MAP \geq than 65 on vasopressors)
 - YES
 - NO

2. Exclusion criteria

- a. Is the patient likely to be hypotensive due to a reason other than sepsis? (e.g. cardiogenic shock, hemorrhagic shock)
 - YES
 - NO

- b. Decision taken for not intubating / ventilating / performing aggressive resuscitation prior to ICU admission
 - YES
 - NO

- c. Patient transferred from another ICU/another Hospital (admission >7 days)
 - YES
 - NO

If the answer to all the inclusion criteria are YES and exclusion criteria are NO, the patient is eligible for enrolment

If eligible and not enrolled, give the reason for this _____

B. ADMISSION DETAILS

1. Patient number: _____
2. Date of hospital admission: _____(DD)/_____(MM)/_____(YY)
3. Date of ICU admission: _____(DD)/_____(MM)/_____(YY)
4. Time of ICU admission (HH:MM): _____: _____
5. The patient was received from:
 - Emergency department /Casualty
 - Hospital ward
 - Operation theatre
 - Another Hospital
 - Other, please specify

Patient transferred from another ICU/another hospital (admission >7 days) is not to be enrolled in the study

C. PATIENT DEMOGRAPHIC CHARACTERISTICS

1. Sex: M F

2. Age: _____

3. Height: _____ cm

4. Weight: _____ Kg

5. Comorbidities (select all that apply):

Asthma

COPD

Diabetes Mellitus

Solid neoplasm

Metastatic Non-metastatic Unknown

Hematologic malignancy

Heart failure (NYHA III-IV)

Ischemic heart disease

Arterial hypertension

Chronic kidney disease

Chronic liver disease

Neuromuscular disease

Obstructive Sleep Apnoea Syndrome (use of nocturnal CPAP / no use of nocturnal CPAP)

Interstitial lung disease

Surgery in last 4 weeks Neuro GI Cardiac Orthopedic Gynac Plastic

Other, please specify _____

None

6. Likely source of sepsis

CNS Lung Cardiac Gastrointestinal Urogenital Soft tissue Skeletal Blood

Gastrointestinal Malaria Dengue Scrub typhus Leptospirosis

Unknown Other _____

D. PATIENT CLINICAL CONDITION ON ADMISSION

1. SOFA score at admission

Total

2. APACHE II SCORE

Total

3. Patients Vitals at presentation

a) Systolic blood pressure: _____ mmHg

b) Diastolic blood pressure): _____ mmHg

c) Heart rate: _____/min

d) Respiratory rate: _____/min

e) SpO₂ %: _____ %

f) Body temperature: _____ °F

4. Glasgow Coma Scale

Eye opening response: (1-4)

Best verbal response: (1-5)

Best motor response: (1-6)

Total

F. DEMOGRAPHICS OF THE RESUCITATOR

1. Specify the primary speciality of primary resuscitator (The one who has initialed and was most actively involved in the resuscitation of the patient on arrival)

(Select only one)

- Anesthesia
 Internal Medicine
 Emergency Medicine
 Pulmonary Medicine
 Surgery
 MBBS
 BAMS
 BHMS
 Other, please specify

2. Consultant involved in primary resuscitation

Yes No

3. Number of doctors involved in resuscitation

1 2 3 4

4. No of nurses involved in resuscitation

1 2 3 4

5. Doctor resuscitator 1: Highest qualification _____ Years of experience in Critical care _____

Doctor resuscitator 2: Highest qualification _____ Years of experience in Critical care _____

Doctor resuscitator 3: Highest qualification _____ Years of experience in Critical care _____

G. FLUID BOLUS (large volume of fluid given over a short duration)

1. What was the main indication for giving the FIRST fluid bolus? (select all that apply)

- Tachycardia
 Hypotension
 To wean off vasopressors
 Low Cardiac output
 Oliguria
 Skin mottling
 Hyperlactatemia
 ScVO₂
 SVV
 PPV
 CVP
 PAOP
 Other, please specify: _____

2. No of Fluid boluses given in first 6 hours after admission

3. Details of fluid boluses given in first 6 hour

S.No	Time of Initiation	Time of Stopping	Volume (ml)	Type of fluid
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

Type of fluids include NaCl 0.9%, RL, 5% Dextrose, Starch, Albumin, Gelatin, Dextran, Balanced salt solution, etc.

4. Mention the change in the following parameter for your FIRST fluid bolus (fill all available)

- | | | |
|------------------------|---|---|
| 1. MAP (mmHg) | Baseline <input style="width: 100px; height: 20px;" type="text"/> | End of fluid bolus <input style="width: 100px; height: 20px;" type="text"/> |
| 2. HR (beats/min) | Baseline <input style="width: 100px; height: 20px;" type="text"/> | End of fluid bolus <input style="width: 100px; height: 20px;" type="text"/> |
| 3. CVP (mmHg) | Baseline <input style="width: 100px; height: 20px;" type="text"/> | End of fluid bolus <input style="width: 100px; height: 20px;" type="text"/> |
| 4. Lactate (mmol/L) | Baseline <input style="width: 100px; height: 20px;" type="text"/> | End of fluid bolus <input style="width: 100px; height: 20px;" type="text"/> |
| 5. ScVO ₂ % | Baseline <input style="width: 100px; height: 20px;" type="text"/> | End of fluid bolus <input style="width: 100px; height: 20px;" type="text"/> |
| 6. PPV % | Baseline <input style="width: 100px; height: 20px;" type="text"/> | End of fluid bolus <input style="width: 100px; height: 20px;" type="text"/> |
| 7. SVV% | Baseline <input style="width: 100px; height: 20px;" type="text"/> | End of fluid bolus <input style="width: 100px; height: 20px;" type="text"/> |

8. PVI	Baseline	<input type="text"/>	End of fluid bolus	<input type="text"/>
9. Urine output (ml)	Baseline	<input type="text"/>	End of fluid bolus	<input type="text"/>
10. Cardiac output (L/min)	Baseline	<input type="text"/>	End of fluid bolus	<input type="text"/>
11. PAOP (mmHg)	Baseline	<input type="text"/>	End of fluid bolus	<input type="text"/>
12. IVC Diameter variability (%)	Baseline	<input type="text"/>	End of fluid bolus	<input type="text"/>
13. SVC Diameter variability (%)	Baseline	<input type="text"/>	End of fluid bolus	<input type="text"/>
14. Aortic Flow velocity	Baseline	<input type="text"/>	End of fluid bolus	<input type="text"/>
15. FTc	Baseline	<input type="text"/>	End of fluid bolus	<input type="text"/>
16. GEDV (ml)	Baseline	<input type="text"/>	End of fluid bolus	<input type="text"/>
17. EVLWI	Baseline	<input type="text"/>	End of fluid bolus	<input type="text"/>
18. PVPI	Baseline	<input type="text"/>	End of fluid bolus	<input type="text"/>

5. What do you think was the response to the **FIRST** fluid bolus?

- No response
 Positive Response
 Do not know/uncertain

6. Positive response to **FIRST** fluid bolus based on

- Changes in arterial pressure
 Changes in cardiac output
 Changes in heart rate
 Changes in urine output
 Change in lactate level
 Change in skin perfusion
 Change in mental status
 Change in CVP
 Change in PAOP
 Change in SVV
 Change in PPV
 Change in PVI
 Change in GEDV
 Resp. variability in IVC/SVC
 Change in FTc
 Change in Aortic Flow Velocity
 Other

H. HEMODYNAMIC MONITORING PARAMETERS AT THE END OF EACH HOUR OF RESUSCITATION (Enter all available values)

Time (HH:MM)							
Duration	Admission	1hr	2hr	3hr	4hr	5hr	6hr
HR (beats/min)							
SBP (mmHg)							
MAP(mmHg)							
SpO ₂ %							
Urine output (ml)							
CVP mmHg							
PPV %							
PVI							
SVV %							
CO (L/min)							
IVC/SVC variability%							
Total fluid volume (ml) (bolus + maintenance)							
Vasoactive drug 1							
Vasoactive drug 1 dose mcg/kg/min							
Vasoactive drug 2							
Vasoactive drug 2 dose mcg/kg/min							
Vasoactive drug 3							
Vasoactive drug 3 dose mcg/kg/min							
Respiratory support							
FiO ₂ %							

Intubation in first 6 hours YES NO Time _____

Respiratory support includes: On air, O₂ with Hudson mask, HFNC, NIV, O₂ with T-piece, O₂ mask with rebreathing bag, PSV, CMV, AC (Volume), AC (Pressure), SIMV (Volume), SIMV (pressure)

Vasoactive drugs include: Noradrenaline, Vasopressin, Adrenaline, Dopamine, Dobutamine, Levosimendan, Milrinone etc.

I. HAEMODYNAMIC MONITORING DEVICES INSERTED/USED IN ICU (First 6 hours)

1. Arterial line YES NO Time of insertion

2. Central line YES NO Time of insertion

3. Echocardiography

2D ECHO used by the attending ICU doctor

Yes No If yes, time of first use
 No times ECHO done in first 6 hours

ECHO	LV FUNCTION
1 TTE <input type="checkbox"/> TEE <input type="checkbox"/>	<input type="checkbox"/> Poor <input type="checkbox"/> Moderate <input type="checkbox"/> Good
2 TTE <input type="checkbox"/> TEE <input type="checkbox"/>	<input type="checkbox"/> Poor <input type="checkbox"/> Moderate <input type="checkbox"/> Good
3 TTE <input type="checkbox"/> TEE <input type="checkbox"/>	<input type="checkbox"/> Poor <input type="checkbox"/> Moderate <input type="checkbox"/> Good
4 TTE <input type="checkbox"/> TEE <input type="checkbox"/>	<input type="checkbox"/> Poor <input type="checkbox"/> Moderate <input type="checkbox"/> Good
5 TTE <input type="checkbox"/> TEE <input type="checkbox"/>	<input type="checkbox"/> Poor <input type="checkbox"/> Moderate <input type="checkbox"/> Good

4. FlowTrac YES NO Time of first use

5. PA Catheter YES NO Time of first use

6. Volume view YES NO Time of first use

7. PiCCO YES NO Time of first use

8. Bioreactance monitor YES NO Time of first use

9. Other _____ YES NO Time of first use

J. VARIABLES USED TO PREDICT FLUID RESPONSIVENESS

(Day 0-3)

Did you use any of the following variables or tests to predict fluid responsiveness at any time during the Day 0-3? Select All that apply and give the date (DD/MM/YY) and time (HH:MM) when first used

No	Variable	Date (when first used)	Time (when first used)
1	CVP		
2	PAOP		
3	GEDV		
4	PPV		
5	SVV		
6	Pleth variability index (PVI)		
7	Corrected Flow Time (FTc)		
8	Tidal Volume Challenge (TVC)		
9	End Expiratory Occlusion Test (EEOT)		
10	Passive Leg Raising Test (PLRT)		
11	Respiratory variation in IVC		
12	Respiratory variation in SVC		
13	Aortic Flow velocity		

K. INVESTIGATIONS (First 6 hours to Day 3)

1. Arterial blood gas analysis (First 6 hours)

No	Time	pH	pO ₂	pCO ₂	cHCO ₃	BE
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						

2. Serum Lactate (First 6 hours)

No	Time	Lactate
1		
2		
3		
4		
5		
6		
7		
8		

3. ScVO₂ (First 6 hours)

No	Time	ScVO ₂
1		
2		
3		
4		
5		
6		
7		

4. VCO₂ Gap (First 6 hours)

S No	Time	VCO ₂ Gap
1		
2		
3		
4		
5		
6		
7		

5. Laboratory data of Day 0-3 (put the worst values if many)

Day	WBC	Platelet	Creatinine	Urea	SGOT	SGPT	Na	K	Bilirubin
Day0									
Day1									
Day2									
Day3									

Day 0 is the first calendar day of presentation and Day 1 is the next calendar day, irrespective of the time of admission

L. ANTIBIOTICS AND MICROBIOLOGY (Day 0-3)

1. Antibiotics

Already present on admission Yes No

Antibiotic 1_____

Antibiotic 2_____

Antibiotic 3_____

Antibiotic started in ICU

1. Antibiotic 1_____ Time of Initiation _____

2. Antibiotic 2_____ Time of Initiation _____

3. Antibiotic 3_____ Time of Initiation _____

4. Antibiotic 4_____ Time of Initiation _____

2. Source Control

Surgery/Drainage needed for source control YES NO

If, yes Surgery Date _____ Time _____ Type _____

Drainage Date _____ Time _____ Type _____

3. Microbiology

1. Time of taking first culture in ICU_____

2. Culture sent prior to ICU admission (last 12 hour) YES NO

Sample cultured (Select all that apply)

Blood BAL Urine CSF Other specify_____

3. Sample sent for culture in ICU YES NO

(Select all that apply) Blood BAL Urine CSF Other specify_____

4. Antibiotics given before culture being taken YES NO

5. Procalcitonin sent YES NO

6. Galactomanan sent YES NO NA

M. ADJUVANT THERAPIES INITIATED FOR SEPSIS (Day 0-3)

Adjuvant therapies used for septic shock

- | | | | |
|------------------------|--|---------------------------|---------------------------|
| 1. Hydrocortisone | YES <input type="checkbox"/> NO <input type="checkbox"/> | Time <input type="text"/> | Dose <input type="text"/> |
| 2. Vitamin C | YES <input type="checkbox"/> NO <input type="checkbox"/> | Time <input type="text"/> | Dose <input type="text"/> |
| 3. Thiamine | YES <input type="checkbox"/> NO <input type="checkbox"/> | Time <input type="text"/> | Dose <input type="text"/> |
| 4. Cytosorb | YES <input type="checkbox"/> NO <input type="checkbox"/> | | |
| 5. PMX-HP | YES <input type="checkbox"/> NO <input type="checkbox"/> | | |
| 6. Other Specify _____ | | | |

N. SUBSEQUENT HEMODYNAMIC AND OTHER MONITORING AND THERAPY (Day 0-3)

1. Is the patient still in shock?

Day 1 YES NO Vasoactive drug YES NO **(Dose in mcg/kg/min)**
 Drug 1 dose Drug 2 dose

Day 2 YES NO Vasoactive drug YES NO **(Dose in mcg/kg/min)**
 Drug 1 dose Drug 2 dose

Day 3 YES NO Vasoactive drug YES NO **(Dose in mcg/kg/min)**
 Drug 1 dose Drug 2 dose

2. Was any advanced hemodynamic monitor used (Select all that apply)

Day 0 YES NO if yes,
 FlowTrac PA Catheter Volume view/PiCCO Echocardiography TEE Other

Day 1 YES NO if yes,
 FlowTrac PA Catheter Volume view/PiCCO Echocardiography TEE Other

Day 2 YES NO if yes,
 FlowTrac PA Catheter Volume view/PiCCO Echocardiography TEE Other

Day 3 YES NO if yes,
 FlowTrac PA Catheter Volume view/PiCCO Echocardiography TEE Other

3. Fluid balance

(Day0)	Input ml	Output ml	Net ml
(Day1)	Input ml	Output ml	Net ml
(Day2)	Input ml	Output ml	Net ml
(Day3)	Input ml	Output ml	Net ml

O. OTHER SYSTEM MONITORING AND THERAPY (Day 0-3)

1. Need for Intubation

Yes No If yes, Time: _____

Main indication for intubation (Select one)

Respiratory failure

Airway obstruction

Cardiovascular instability

Neurological impairment

Other, specify _____

P/F ratio at time of intubation:

2. Initial mode used for mechanical ventilation

PSV CMV AC (Volume) AC (Pressure) SIMV (Volume) SIMV (pressure)

Initial mechanical ventilation settings (Select all that apply)

FiO₂ % RR PS TV ml PEEP Flow L

Mechanical Ventilation Day 0 Yes No

Mechanical Ventilation Day 1 Yes No

Mechanical Ventilation Day 2 Yes No

Mechanical Ventilation Day 3 Yes No

3. Chest X-ray or CT scan (First one performed since admission)

YES NO

If YES, Chest X-ray or CT scan findings (Select all that apply):

Normal lung fields

Pleural effusion

Unilateral lung opacity

Bilateral lung opacities

Pulmonary contusion

Rib fracture(s)

Pneumothorax

Hemothorax

4. 24-hour Urine output

(Day 0)

(Day1)

(Day2)

(Day3)

5. Renal support Day 0-3

Day 0 YES NO

Day 1 YES NO

Day 2 YES NO

Day 3 YES NO

If YES Time of initiation

Initial therapy IHD SLED CVVH other _____

Initial reason for renal support:

Metabolic acidosis Hyperkalemia Low urine output Other _____

6. SOFA Score Day 1-3

Day 1 _____

Day 2 _____

Day 3 _____

P. CHOICE OF HAEMODYNAMIC VARIABLES, TESTS AND MONITORING USED (Day 0-3)

Why did you NOT use the following haemodynamic variables, tests, monitors in your patient

1. **IBP** (Invasive blood pressure monitoring)

Used Not available Not applicable Other variable more relevant No trust in this variable

2. **CVP** (central venous pressure)

Used Not available Not applicable Other variable more relevant No trust in this variable

3. **PAOP** (pulmonary artery occlusion pressure)

Used Not available Not applicable Other variable more relevant No trust in this variable

4. **SVV** (stroke volume variation)

Used Not available Not applicable Other variable more relevant No trust in this variable

5. **PPV** (pulse pressure variation)

Used Not available Not applicable Other variable more relevant No trust in this variable

6. **PVI** (pleth variability index)

Used Not available Not applicable Other variable more relevant No trust in this variable

7. **TTE** (transthoracic echocardiography)

Used Not available Not applicable Other variable more relevant No trust in this variable

8. **TEE** (trans-esophageal echocardiography)

Used Not available Not applicable Other variable more relevant No trust in this variable

9. **TED** (trans-oesophageal doppler)

Used Not available Not applicable Other variable more relevant No trust in this variable

10. **PLRT** (passive leg raising test)

Used Not available Not applicable Other variable more relevant No trust in this variable

11. **EEOT** (End expiratory occlusion test)

Used Not available Not applicable Other variable more relevant No trust in this variable

12. **TVC** (Tidal Volume Challenge)

Used Not available Not applicable Other variable more relevant No trust in this variable

13. **CO/SV** (Cardiac output/Stoke volume)

Used Not available Not applicable Other variable more relevant No trust in this variable

14. **EVLWI** (Extra vascular lung water index)

Used Not available Not applicable Other variable more relevant No trust in this variable

15. **GEDV** (Global end diastolic volume)

Used Not available Not applicable Other variable more relevant No trust in this variable

16. **PVPI** (Pulmonary vascular permeability index)

Used Not available Not applicable Other variable more relevant No trust in this variable

Q. LIMITATION /WITHDRAWAL OF THERAPY IN ICU

Was there a decision implemented for limitation/withdrawal of therapy or no resuscitation for this patient at any time during the ICU Stay?

YES NO

R. PATIENT DISCHARGED AGAINST MEDICAL ADVICE (DAMA)

YES NO

S. STATUS AT ICU DISCHARGE

1. Date of ICU discharge _____ (DD:MM; YY)
2. Time of ICU discharge _____: _____(HH:MM)
3. Date of hospital discharge _____ (DD:MM: YY)
4. Time of hospital discharge _____: _____(HH:MM)
5. Status at ICU discharge Dead Alive
6. Status at Hospital Discharge Dead Alive
7. Status at Day 28 day of ICU admission Dead Alive