

A multicentre Observational study of critically ill patients
with Hospital-acquired Blood Stream Infection.

**Case Report Form**



☐ Age > 18 Years

☐ Hospital acquired Blood Stream Infection (BSI).

* Positive blood culture (BC) sampled after 48 hours following hospital admission.
* For CNS and suspected contaminants (coagulase-negative staphylococci, Corynebacterium species, Bacillus species, Propionibacterium species, Micrococcus species), 2 blood cultures with the same antimicrobial susceptibility profile are mandatory or strong clinical grounds that it is not a contaminant. One example is infected material proven as a source for the HA-BSI.

☐ Treated in the ICU

* ☐ BC has been sampled in the ICU (ICU-Acquired BSI)

OR

* ☐ BC sampled in the ward AND the patient has been transferred to the ICU for the treatment of the BSI. (HOSPITAL-Acquired BSI)



☐ Previous inclusion in the study.

☐ BSI that does not meet the inclusion criteria



Patient ID: \_\_\_\_\_\_\_\_\_\_\_\_\_

(the patient ID consists out of: site number + rank number within the site)

Age (years) \_\_\_\_\_\_\_\_\_\_\_\_\_

Gender: ☐ Male ☐ Female

Weight (kg): \_\_\_\_\_\_\_\_\_\_\_\_\_

Height (m): \_\_\_\_\_\_\_\_\_\_\_\_\_

Use measured values if available, else enter estimated values.



2.1. Date of hospital admission (day/month/year): \_\_\_\_\_\_\_\_\_\_\_\_\_

2.2. Date of ICU admission (day/month/year): \_\_\_\_\_\_\_\_\_\_\_\_\_

2.3 Admission source

□ Other hospital

□ Emergency department

□ Operating Room/recovery

□ Hospital ward/ floor

□ Other, please specify …………………….

2.4. Type of admission (see appendix for definitions):

☐ medical

 ☐ surgical ☐ elective

 ☐ emergency

 ☐ Burns

 ☐ Trauma

☐ Neuro-surgical

☐ Cardiac-surgical

* 1. **Presence of chronic illnesses and co-morbid conditions**

(check all present)

|  |  |
| --- | --- |
| COPD / chronic pulmonary disease | ☐ |
| Home Oxygen or NIV | ☐ |
| Cardio-Vascular  |  |
| Heart Failure (NYHA 3 or 4) | ☐ |
| Previous Myocardial infarct | ☐ |
| Peripheral vascular disease | ☐ |
| Cerebro-vascular disease | ☐ |
| Dementia | ☐ |
| Hemiplegia | ☐ |
| Diabetes  | ☐ |
| Diabetes with end organ damage | ☐ |
| Renal disease, moderate | ☐ |
| Renal disease, severe  | ☐ |
| Connective tissue disease | ☐ |
| Ulcer disease (gastro-duodenal) | ☐ |
| Liver disease, mild | ☐ |
| Liver disease, severe | ☐ |
| Immunosuppression | ☐ |
| Steroids > 20 mg/day for at least 4 weeks or  | ☐ |
| Chemotherapy /radiotherapy within 6 weeks | ☐ |
| Organ transplant  | ☐ |
| AIDS (not only HIV pos.) | ☐ |
| Malignancy (active only) | ☐ |
| Proven metastases | ☐ |
| Haematological malignancy (Leukaemia or lymphoma) | ☐ |

**2.6 ICU Admission diagnosis**

|  |
| --- |
| **Primary ICU admission diagnosis** (reason for ICU admission) \_ **\_ \_** |

See list in appendix and enter the code – Post operative admissions other than cardiac arrest should have an operative code as primary diagnosis

*e-crf should show dropdown lists appropriate to the type of patient and ease data capture*

* 1. **Severity, Organ dysfunctions and septic shock on ICU admission**

Please enter values of the first 24H of ICU admission.

*(to obtain organ dysfunctions present on ICU admission, SOFA SCORE and calculate sepsis 3)*

Was there an infection (proven or suspected) Yes ☐ No ☐

Invasive Mechanical Ventilation ☐

Non-Invasive Mechanical Ventilation or CPAP ☐

Maximum dose of Adrenaline or Noradrenaline \_\_\_\_\_

(mg/h or mcg/min or mcg/kg/min)

Dopamine or Dobutamine ☐

Vasopressin ☐

Heart rate \_\_\_\_ (min) \_\_\_\_ (max)

Systolic Blood Pressure \_\_\_\_ (min) \_\_\_\_ (max)

Mean Arterial Pressure \_\_\_\_ (min) \_\_\_\_ (max)

Glasgow Coma Scale \_\_\_\_ / 15 \* GCS was assessed with ongoing sedation ☐

☐ Delirium (*see appendix for definition)*

 ☐ Hypoactive

 ☐ Hyperactive

 ☐ Mixed

Temperature \_\_\_\_ (min) \_\_\_\_ (max)

 Unit selector (C or F)

urine output \_\_\_\_\_\_ ml/24h

PaO2 \_\_\_\_\_\_ Unit selector (mmHg, kPa)
FiO2 \_\_\_\_\_\_ % (please enter paired PaO2/FiO2 for the worse value of the 24h)

Lactate \_\_\_\_\_\_\_ (max) mmol/l

BUN or serum Urea (max value) \_\_\_\_\_\_\_
Unit selector (mg/dL, mmol/L)

Creatinine \_\_\_\_\_ (max)

 Unit selector (mg/dL, µmol/L)

Sodium (mmol/l) \_\_\_\_ (min) \_\_\_\_ (max)

Potassium (mEq/L) \_\_\_\_ (min) \_\_\_\_ (max)

Bicarbonate (mEq/L) \_\_\_\_ (min) \_\_\_\_ (max)

Bilirubin \_\_\_\_ (max)

Unit selector mg/dL (µmol/L)

White Blood Cell count \_\_\_\_ (min) \_\_\_\_ (max)

 Unit selector (x 103/mm3, 103/µL, cells/mm3)

Platelet count \_\_\_\_ (min)

 Unit selector (x 103/mm3, 103/µL, cells/mm3)

* 1. **Severity Score on admission**

*Please enter your own severity score if it is readily available.*

APACHE 2 \_\_\_\_\_\_\_\_\_

Or

APACHE 3 \_\_\_\_\_\_\_\_\_

Or

SAPS2 \_\_\_\_\_\_\_\_\_\_

Or

ANZROD \_\_\_\_\_\_\_\_\_

Or

Other (please specify and enter calculated ROD) \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_



4.1.4. Organ failure assessment

All data below should be recorded from the day the blood culture was sampled.

3.1 Timing of the first positive blood culture sampling *(study infection, it is time zero of the study)*:

- date (day / month / year): \_\_\_\_\_\_\_\_\_\_\_\_\_

- time (24h clock; e.g. 23:59): \_\_\_\_\_\_\_\_\_\_\_\_\_

3.2 Time to positivity \_\_\_\_\_ hours – or tick ☐ if unknown/ not reported.

3.3 Presumed source of the bloodstream infection:

 (presumed source of the bloodstream infection as determined by the treating clinician.
Please indicate the most likely source. If more than one, please number in the order of likelihood)

 ☐ Primary (no clear portal of entry identified)

 ☐ Catheter-related

 ☐ Respiratory tract (Pneumonia)

 ☐ Respiratory tract (Pleural, empyema)

 ☐ Intra-abdominal

 ☐ Peritonitis

 ☐ Biliary source

 ☐ Other intra-abdominal

☐ Urinary tract

 Bone or soft tissues

 ☐ Necrotizing fasciitis

 ☐ Other soft tissue

 ☐ Joint or bone

 ☐ Endocarditis

 ☐ Central Nervous System

 ☐ Other, please describe \_\_\_\_\_\_\_ (*free text comment box*)

**3.4 Causative micro-organism and susceptibility**

*This section to come immediately following the inclusion criteria to avoid data capture in ineligible patients*

Dependent on the species that is selected in the eCRF a susceptibility pattern checklist will pop-up.

Possibility to enter multiple pathogens.

Causative micro-organism table 1: Aerotolerant Gram-positive

Causative micro-organism table 2: Aerotolerant Gram-negative

Causative micro-organism table 3: Strict anaerobe

Causative micro-organism table 4: Fungi

Will ask for specific MICs, mechanisms of resistance, and selected enzymes ONLY in centres that report the capability in the centre questionnaire.

Tables for pathogen specific antibiogram provided

*If Coagulase Negative Staphylococcus (or other common contaminants) is selected: please confirm there have been at least 2 positive blood cultures with the same pathogen (species and susceptibility profile) or infected material with the same pathogen and strong clinical suspicion of the blood culture not being a contaminant.*

**3.5 Severity assessment and scoring**

*Please note worse values in the 24h in the calendar day of BC sampling (the day where the first positive blood culture was taken). In cases where ICU admission = day of BC sampling the e-CRF should not show questions that are similar.*

☐ Invasive mechanical ventilation
☐ Non-Invasive Mechanical Ventilation or CPAP

☐ Renal replacement therapy: Intermittent Haemodialysis

☐ Renal replacement therapy: Continuous Veno-Venous Hemo(dia)Filtration

☐ ECMO : Veno-Venous

☐ ECMO : Veno-Arterial

Adrenaline or Noradrenaline ☐ *(if yes pops the question:)*

Maximum dose of Adrenaline or Noradrenaline on the day of Blood Culture sampling \_\_\_\_\_

 Unit selector (mg/h or mcg/min or mcg/kg/min)

Vasopressin ☐ Dopamine or Dobutamine ☐

Mean Arterial Pressure \_\_\_\_ (min) \_\_\_\_ (max)

Temperature \_\_\_\_ (min) \_\_\_\_ (max)

 Unit selector (C or F)

urine output \_\_\_\_\_\_ ml/24h

Glasgow Coma Scale \_\_\_\_ / 15 \* GCS was assessed with ongoing sedation ☐

☐ Delirium (*see appendix for definition)*

 ☐ Hypoactive

 ☐ Hyperactive

 ☐ Mixed

PaO2 \_\_\_\_\_\_ Unit selector (mmHg, kPa)
FiO2 \_\_\_\_\_\_ % (please enter paired PaO2/FiO2 for the worse value of the 24h)

Lactate \_\_\_\_\_\_\_ (max) mmol/l

Creatinine \_\_\_\_\_ (max) Unit selector (mg/dL, µmol/L)

White Blood Cell count \_\_\_\_ (min) \_\_\_\_\_ (max)

 Unit selector (x 103/mm3, 103/µL ,cells/mm3).

☐ Cardiac arrest in the previous 24 hours preceding the BC sampling



Please enter all antimicrobials that were administered starting the 2 days before the BSI to document probabilistic treatments and breakthrough infections. Document any antimicrobials used in ICU after the infection. *(this table is printed several times at the end of the CRF to help research coordinators with data capture where required)*

**Antimicrobial 1** (possibility to increment other antimicrobials in the e-crf)

Name of the antimicrobial \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (dropdown list)

Date and time of the first dose \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_dd/mm/yyyy , hh:mm

Date of the last dose \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dd/mm/yyyy

Route ☐ Intra-Venous

 ☐ Intermittent infusion

 ☐ extended infusion (duration > 2 to 4 hours)

 ☐ continuous infusion

 ☐ Oral ☐ Aerosolized

Total dose on the first 24 hours of therapy (including loading dose) \_\_\_\_\_\_\_\_ (gram/milligram/unit)

If different, total dose for the next 24 hours of therapy (between 24-48 hours) \_\_\_\_\_\_\_\_ (gram/milligram/unit)
(Please indicate the total dosing administered for 24hours, regardless of the time of the day it is started and/or if it crosses calendar days)

Reason for prescription (one from dropdown list)

☐ Empirical therapy for sepsis

☐ Targeted therapy for blood stream infection based on positive blood culture

☐ Targeted therapy for blood stream infection based on antibiogram results

☐ De-escalation based on antibiogram results (study infection)

☐ Escalation based on antibiogram results (study infection)

☐ 2nd antibiotic for combination therapy (study infection)

☐ Treatment of a different infection than the study infection

☐ To treat the BSI, reason not recorded

☐ Allergic reaction to another antimicrobial, , please specify \_\_\_\_\_\_\_\_\_\_\_\_\_

☐ Adverse event attributed to another antimicrobial, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_

☐ Other, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_

Reason for stopping the antibiotic (one from dropdown list)

☐ Patient cured

☐ Duration of treatment completed

☐ Change to a different antibiotic, escalation

☐ Change to a different antibiotic or stopping an antibiotic, de-escalation

☐ Allergic reaction to the antimicrobial.

☐ Adverse event attributed to the antimicrobial, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_

☐ Other, please specify

**4.2 Source control**

*(this table is printed several times at the end of the CRF to help research coordinators with data capture where required)*

Was source control required ☐ YES ☐ NO

If yes:

*(please enter each intervention for source control, if more than one repeat the table)*

Date and time of the source control intervention \_\_\_\_\_\_\_\_ dd/mm/yyyy , hh:mm

Type of source control intervention (*select one from dropdown*)

Surgical

 ☐ Surgical Abdominal

☐ Surgical Cardiac ☐ Surgical Thoracic and Mediastinal

☐ Surgical Vascular

 ☐ Surgical Skin ☐ Surgical other, please specify \_\_\_\_\_\_\_\_\_\_

Percutaneous

 ☐ Perc. Abdominal ☐ Perc. Renal (including stent)

☐ Perc. vascular ☐ Perc. Thoracic (including Chest drain)

☐ Perc. Mediastinal

 ☐ Perc. other, please specify \_\_\_\_\_\_\_\_\_\_

☐ Catheter removal

☐ Other, please specify \_\_\_\_\_\_\_\_\_\_

Was source control effective (*one possible answer, drop down*)

Yes, completely ☐

*(defined as the source of infection is completely cleared)*

 incompletely ☐

*(defined as the source of infection is NOT completely cleared)*

 No, it has been attempted but ineffective ☐

Did the patient require ongoing or continuous intervention while in the ICU (e.g irrigation), please provide detail in comments:

Free text \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*NB: for coherence testing – some sources such a Catheter, Intra-abdominal, surgical, skin require source control. If one of those is entered and source control is checked as NO, should ask the question: You entered source as $..... Please clarify if it required source control and if possible detail in comments why not.*

**4.3 Investigations performed to investigate source or septic metastasis**

Enter any investigations done between day 1 and 7 that were performed to investigate the source or the complications of the BSI.

CT SCANNER : ☐ Abdomen/Pelvis ☐ Thorax ☐ Head ☐Neck ☐ Limbs ☐ Other

MRI : ☐ Abdomen/Pelvis ☐ Thorax ☐ Head ☐Neck ☐ Limbs ☐ Other

ULTRASOUND: ☐ Abdomen/Pelvis ☐ Thorax ☐ Head ☐Neck ☐ Limbs ☐ Other

CARDIAC ECHOGRAPHY ☐ Transthoracic ☐ Transoesophageal

☐ Fundoscopy



Please record worse values within the calendar day

*Only for patients alive and still in the ICU at day 7*

*Day 7 is the \_\_\_/\_\_\_/\_\_\_ (calculated by the e-CRF)*

☐ Invasive mechanical ventilation
☐ Non-Invasive Mechanical Ventilation or CPAP

☐ Renal replacement therapy: Intermittent Haemodialysis

☐ Renal replacement therapy: Continuous Veno-Venous Hemo(dia)Filtration

☐ ECMO : Veno-Venous

☐ ECMO : Veno-Arterial

Adrenaline or Noradrenaline ☐ *(if yes pops the question:)*

Maximum dose of Adrenaline or Noradrenaline on day 7 \_\_\_\_\_

 Unit selector (mg/h or mcg/min or mcg/kg/min)

Vasopressin ☐ Dopamine or Dobutamine ☐

Mean Arterial Pressure \_\_\_\_ (min) \_\_\_\_ (max)

Temperature \_\_\_\_ (min) \_\_\_\_ (max)

 Unit selector (C or F)

urine output \_\_\_\_\_\_ ml/24h

Glasgow Coma Scale \_\_\_\_ / 15 - sedated Yes ☐ No ☐

*(see below for definition)*

☐ Delirium

 ☐ Hypoactive

 ☐ Hyperactive

 ☐ Mixed

PaO2 \_\_\_\_\_\_ Unit selector (mmHg, kPa)
FiO2 \_\_\_\_\_\_ % (please enter paired PaO2/FiO2 for the worse value of the 24h)

Lactate \_\_\_\_\_\_\_ (max) mmol/l

Creatinine \_\_\_\_\_ (max)

 Unit selector (mg/dL,µmol/L)

White Blood Cell count \_\_\_\_ (min) \_\_\_\_ (max)
Unit selector (x 103/mm3, 103/µL ,cells/mm3).

**5.2 Microbiological response on day 7**

*(this table is printed several times at the end of the CRF to help research coordinators with data capture where required)*

Where there any other blood cultures **taken** between the first positive BC and day 7.

☐ NO ☐ Yes If yes, please enter:

Day of subsequent blood culture sampling: (day / month / year): \_\_\_\_\_\_\_\_\_\_\_\_\_

Was it positive? ☐ Negative ☐ Positive

If Positive:

☐ Same Bacteria

☐ Other Bacteria (this opens selection of bacteria, same as initial one)

Time to positivity \_\_\_\_\_ hours

**5.3 Subsequent bacteremia (d7-d28)**

Was there any other positive blood culture between day 7 and day 28.

☐ Yes ☐ NO

 If yes, please enter details

Date of positivity \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_\_

☐ Same Bacteria

☐ Other Bacteria (this opens selection of bacteria, same as initial one)

**5.4 Clinical response on day 7**

Please check the clinical response of the patient for the initial infection under study (as estimated by treating physician).

☐ Resolution (= clinical cure)
(disappearance of all signs and symptoms related to the BSI and its source)

☐ Improvement (incomplete reduction in the signs and symptoms of the BSI)

☐ Clinical failure with: *(multiple possible answers)*

☐ Persistence or progression of signs of infection or sepsis.

☐ Septic metastasis.
 ☐ Persisting infection at the source.

☐ As defined by clinician (No details given)

☐ Indeterminate (no evaluation possible, for any reason)



(day 1 = day of onset bloodstream infection)

**6.1 Supportive therapy after the occurrence of blood stream infection**

Please enter the number of days on the therapy from the day of the blood stream infection to day 28 –It has to be administered as at least 1 hour / day to be considered on.

* Vasoactive medications (inotropic or vasopressor) \_\_\_\_\_\_ days
* mechanical ventilation (invasive or non-invasive) \_\_\_\_\_\_\_days
* renal replacement therapy \_\_\_\_\_\_\_days
* ECMO \_\_\_\_\_\_\_days

**6.2 28-day status**

☐ Alive in the ICU

☐ Alive in the Hospital

☐ Death in the ICU

☐ Death in the Hospital

☐ Discharged from the Hospital

 *Dates to pop up according to status.*

Date of ICU discharge (day / month / year): \_\_\_\_\_\_\_\_\_\_\_\_\_

Date of Hospital discharge (day / month / year): \_\_\_\_\_\_\_\_\_\_\_\_\_

 Date of death (day / month / year): \_\_\_\_\_\_\_\_\_\_\_\_\_

☐ Death was preceded by a decision to withdraw life-sustaining treatment.

*(Ethical decision to stop or remove an ongoing treatment*. *For example, a patient may be taken off the ventilator. This is NOT a decision of withholding treatments*

*It should only be entered if organ supportive therapy was stopped)*

Definitions

**Type of admission:** Surgical - defined as having surgery within 7 days of ICU admission.

Elective surgery is defined as surgery scheduled > 24 hours in advance and emergency surgery as that scheduled within 24 hours of operation.

Burns or Trauma is defined as an ICU admission directly related to, or as a complication of, a burns or a traumatic event in the 30 days preceding ICU admission. Cardiac-surgery and neuro-surgery refer to primary admissions for cardiac or neuro surgery. The box for elective or emergency needs to be ticked.

“Trauma, burns, neuro or cardiac” *and* “surgical” should be selected as type of admission if a patient with those categories has undergone surgery, elective or emergency definitions apply.

All other admissions are considered medical.

**Delirium:** Delirium is defined as an acute or fluctuating mental state (which represents a change from the patient’s normal baseline) and is characterized by inattention with altered level of consciousness, agitation or disorganized thought processes. It can be diagnosed by standardized assessment tools such as (but not limited to) the Confusion Assessment Method for ICU (CAM-ICU)

**Hyperactive delirium** is characterized by agitation, restlessness, and attempts to remove tubes and lines. **Hypoactive delirium** is characterized by withdrawal, flat affect, apathy, lethargy, and decreased responsiveness. Mixed delirium is when patients fluctuate between the two.

**Glasgow Coma Scale** (GCS): if non-sedated, please enter lowest GCS of the 24 hours, if sedated enter the GCS just prior to sedation. If unable to enter one of those two, please enter current GCS and tick the box GCS assessed with ongoing sedation.

□ **Admission source:** refers to where was the patient prior to admission to the ICU.

□ **Primary diagnosis:** The main reason for admission to the ICU. Only one primary diagnosis should be entered (see codes). If surgical admission should enter the site of surgery as primary diagnosis.

□ **Comorbidities:** Chronic diseases present prior to ICU admission. More than one can be chosen according to the following definitions:

- **Metastatic cancer:** Metastases proven by surgery, computed tomography or magnetic resonance scan, or any other method.

- **Hematologic cancer:** Lymphoma, Leukaemia.

- **AIDS** HIV positive patients with clinical complications such as *Pneumocystis carinii* pneumonia, Kaposi’s sarcoma, lymphoma, tuberculosis, or toxoplasma infection.

- **Chronic renal failure:** Defined as either chronic dialysis dependent renal failureor history of chronic renal insufficiency with a serum creatinine > 3.6 g/dL (300 µmol/L).

- **Immunosuppression:** Administration within the 6 months prior to ICU admission of corticosteroid treatment (at least 0.3 mg/kg/day prednisolone for at least one month) or other immunosuppressant drugs, severe malnutrition, congenital immune-humoral or cellular immune deficiency state.

- **Chemotherapy/radiotherapy:** If within 6 months prior to ICU admission.

**List of admission diagnosis**

**I post operative diagnosis (site of Surgery)**

**1000 Neurosurgery:**

1101 Craniotomy for neoplasm

1102 Craniotomy for hemorrhage

1103 Spinal surgery

1104 Other neurosurgical

**1300 Cardiothoracic surgery:**

1301 Valvular surgery

1201 Lung neoplasm

1303 CABG

1306 Heart or lung transplantation

1307 Major aortic surgery

1307 Urgent aortic surgery (ruptured/dissecting)

1308 Carotid endarterectomy

1309 Other major vascular surgery: includes all surgery on intra thoracic or intra-abdominal vessels

1310 Peripheral vascular surgery:

1311 Other Cardiovascular surgery

1201 Surgery for respiratory infection

1204 Other respiratory surgery

**1400 Renal-urinary tract:**

1401 Renal surgery for neoplasm

1402 Other renal

**1500 Gastrointestinal surgery:**

1501 GI neoplasm

1502 GI perforation / rupture

1503 GI Obstruction

1504 GI Bleeding

1505 Liver transplantation

1506 Cholecystitis/cholangitis

1507 Other GI Surgery

**1600 Other surgical sites:**

1601 Endocrine surgery (thyroid, adrenal, pancreas etc)

1202 Other respiratory neoplasm (mouth, sinus, larynx, trachea)

1701 Ostetric surgery: Cesarean section; surgery for ectopic pregnancy, peri or post partum hemorrhage, intra-uterine death

1702 Gynecological surgery: surgery on uterus, ovaries, cervix uteri, genitalia

**1800 Trauma**

1801 Head trauma (with or without multiple trauma) (surgery for)

1802 Multiple trauma excluding head trauma (surgery for)

1804 Limb fracture

**1900 Skin and soft tissue surgery**

1901 Surgery for necrotizing fasciitis

1902 Burns surgery

1903 Other skin or soft tissue surgery

**II Non-operative Diagnoses**

**000 Surveillance/monitoring only**

**010 shock states**

311 Hemorrhagic shock / hypovolemia

311 Sepsis / septic shock (urinary tract)

311 Sepsis / septic shock (NON-urinary tract)

303 Cardiogenic Shock

**100 Neurological:**

101 Seizures

102 Stroke

103 Intracerebral hemorrhage

104 Neurologic neoplasm

105 Meningitis/encephalitis

106 Non-traumatic subarachnoid hemorrhage

107 Neuromuscular diseases

108 Other Neurological

**200 Respiratory:**

201 ARDS

202 COPD

203 Asthma/Allergy

204 Pneumonia (bacterial, viral)

205 Aspiration pneumonia

206 pulmonary embolus

209 Respiratory neoplasm

210 Respiratory arrest

211 Other Respiratory

**300 Cardiovascular:**

301 Out-of-hospital cardiac arrest

302 In-hospital cardiac arrest

303 Cardiogenic Shock

305 Hypertension

306 Arrhythmia

307 Cardiac failure without shock

308 Endocarditis/myocarditis

309 Aortic aneurysm

310 Coronary disease / Myocardial infarction

312 Other cardiovascular

**500 Hematological:**

502 Coagulopathy or thrombocytopenia or neutropenia

504 Other hematological

**600 Digestive/Liver:**

601 GI Bleeding

603 Severe pancreatitis

604 Liver failure

605 Other Gastro intestinal

**700 Other medical:**

401 Renal Failure

701 Diabetic ketoacidosis

702 Metabolic coma

703 Drug overdose

704 Metabolic diseases

705 Peripartum complication

706 Other gynecological

707 Other Medical

**900 Trauma**

901 Head trauma (with or without multiple trauma)

902 Multiple trauma excluding head trauma