

Asan Dataset Details

The Asan dataset, used in our study, is private due to patient confidentiality. This appendix provides a detailed description of its features, cohort characteristics, and scoring criteria. The dataset comprises 71 features categorized into Demographics, Treatment Information, and Patient Condition.

Table 1: Description of the Asan Datasets

Description	Value
Unique Admissions	14,843
Age year - mean(s.d.)	61.8 (14.6)
Male gender - n(%)	9,221 (62.1%)
Height - mean(s.d.)	162.9 (8.6)
Weight - mean(s.d.)	60.9 (12.3)
Initial eSOFA - mean(s.d.)	1.05 (0.98)
28 days mortality - n(%)	4,843 (32.6%)

Table 2: Patient Demographic

Feature Name	Description (Normal Range and Unit)
SEX	1: Male, 2: Female (Normal: 1, 2)
AGE	Age in years (Normal: 0~150)
HEIGHT	Height in cm (Normal: 20~300)
WEIGHT	Weight in kg (Normal: 1~300)
BMI	Body mass index in kg/m ² (Normal: 20~25)
Initial Admission Path	Admission path: 1: ER, 2: Outpatient (Normal: 1, 2)
Initial Admission Ward	Admission ward: 1: General Ward, 2: ICU (Normal: 1, 2)
Initial Admission Department	1: Medical, 2: Neuro, 3: Surgical (GS) 4: Medical Divisions (CS, OS, PS, OBGY, URO, ENT, TS) 5: Others (Normal: 1~5)
Underlying Conditions	1: DM, 2: HTN 3/4/5: Chronic renal/liver/lung disease 6/7: Cardiovascular/Rheumatologic disease 8/9: Neuromuscular/Cerebrovascular disease 10/11: Solid organ cancer/Hematologic malignancy 12: Solid organ transplantation 13: Others (Normal: 1~13)

Table 3: Treatment Information

Feature Name	Description
Arterial Line / Central Venous Catheter	1: Start, 0: End
ECMO	1: Start, 0: End
Continuous Renal Replacement Therapy	1: Start, 0: End
Endotracheal Intubation	1: Start, 0: End
Antibacterial Agents	1: True, 0: False
Antifungal Agents	1: True, 0: False
Antiviral Agents	1: True, 0: False
Vasopressors	1: True, 0: False
Intravenous Fluids	1: True, 0: False
Steroids	1: True, 0: False
Albumin	1: True, 0: False
Surgery	1: True, 0: False

Table 4: Patient Condition

Feature Name	Description (Normal Range and Unit)
Systolic Blood Pressure	Blood pressure in mmHg (Normal: 90~120)
Diastolic Blood Pressure	Blood pressure in mmHg (Normal: 60~80)
Heart Rate	Heart beats per minute (bpm, Normal: 60~100)
Respiratory Rate	Breaths per minute (bpm, Normal: 12~20)
Body Temperature	Body temperature in °C (Normal: 36.0~37.5)
Oxygen Saturation	Oxygen saturation percentage (% , Normal: 95~99)
White Blood Cell Count	Cell count in $\times 10^3/\mu\text{L}$ (Normal: 4.0~11.0)
Absolute Neutrophil Count	Neutrophil count per μL (Normal: 160~6600)
Hemoglobin	Hemoglobin level in g/dL (Normal: 12.5~17.5)
Platelet Count	Platelet count in $\times 10^3/\mu\text{L}$ (Normal: 134~387)
C-Reactive Protein	CRP in mg/dL (Normal: 0.00~0.50)
Sodium	Sodium in mMol/L (Normal: 136~145)
Potassium	Potassium in mMol/L (Normal: 3.5~5.1)
Chloride	Chloride in mMol/L (Normal: 98~107)
Total Carbon Dioxide Concentration	CO ₂ concentration in mMol/L (Normal: 22~29)
Magnesium	Magnesium in mg/dL (Normal: 1.6~2.6)
Lactic Acid	Lactic acid in mmol/L (Normal: 0.70~2.00)
Prothrombin Time	Prothrombin time in seconds (Normal: 11.5~13.7)
Activated Partial Thromboplastin Time	aPTT in seconds (Normal: 40~60)
International Normalized Ratio	INR (Normal: 1~2)
D-Dimer	D-Dimer in $\mu\text{g/ml}$ FEU (Normal: 0.00~0.50)
Glucose	Blood glucose in mg/dL (Normal: 74~106)
Blood Urea Nitrogen	BUN in mg/dL (Normal: 6~23)
Creatinine	Creatinine in mg/dL (Normal: 0.70~1.20)
Estimated Glomerular Filtration Rate	eGFR in ml/min/1.73m ² (Normal: 50~80)
Calcium	Calcium in mg/dL (Normal: 8.6~10.2)
Inorganic Phosphate	Phosphate in mg/dL (Normal: 2.5~4.5)
Uric Acid	Uric acid in mg/dL (Normal: 3.4~7.0)
Total Protein	Total protein in g/dL (Normal: 6.6~8.7)
Albumin	Albumin in g/dL (Normal: 3.5~5.2)
Total Bilirubin	Bilirubin in mg/dL (Normal: 0.0~1.2)
Alkaline Phosphatase	ALP in U/L (Normal: 40~129)
Alanine Aminotransferase	ALT in U/L (Normal: 5~41)
Aspartate Aminotransferase	AST in U/L (Normal: 5~40)
Amylase	Amylase in U/L (Normal: 28~100)
Lipase	Lipase in U/L (Normal: 13~60)
Creatine Kinase	CK in U/L (Normal: 39~308)
Creatine Kinase-MB	CK-MB in $\mu\text{g/L}$ (Normal: 0.0~5.0)
Troponin I	Troponin I in ng/mL (Normal: 0.000~0.046)
Brain Natriuretic Peptide	BNP in pg/mL (Normal: 0~738)
Lactate Dehydrogenase	LDH in U/L (Normal: 100~200)
Arterial Blood Gas Analysis - pH	Blood pH (Normal: 7.350~7.450)
Arterial Blood Gas Analysis - Partial Pressure of Oxygen	PO ₂ in mmHg (Normal: 83.0~108.0)
Arterial Blood Gas Analysis - Base Excess	Base excess in mmol/L (Normal: -2.0~3.0)
Arterial Blood Gas Analysis - Bicarbonate	Bicarbonate in mmol/L (Normal: 21.0~28.0)
Arterial Blood Gas Analysis - Oxygen Saturation	O ₂ saturation in % (Normal: 95.0~98.0)
Arterial Blood Gas Analysis - Fraction of Inspired Oxygen	FiO ₂ in % (Normal: 20~100)
Sequential Organ Failure Assessment Score (e-SOFA)	e-SOFA score (Normal: 0~6)

Details for eSOFA Score Criteria

Table 5: eSOFA Score Criteria for Septic Patients

Criterion	Description
1	Vasopressor initiation
2	Initiation of mechanical ventilation
3	Doubling of serum creatinine or a decrease by 50% of estimated glomerular filtration rate (eGFR) relative to baseline, excluding patients with end-stage renal disease
4	Total bilirubin ≥ 2.0 mg/dL and an increase by 100% from baseline
5	Platelet count < 100 cells/ μ L and a $\geq 50\%$ decline from baseline (baseline must be ≥ 100 cells/ μ L)
6	Serum lactate ≥ 2.0 mmol/L