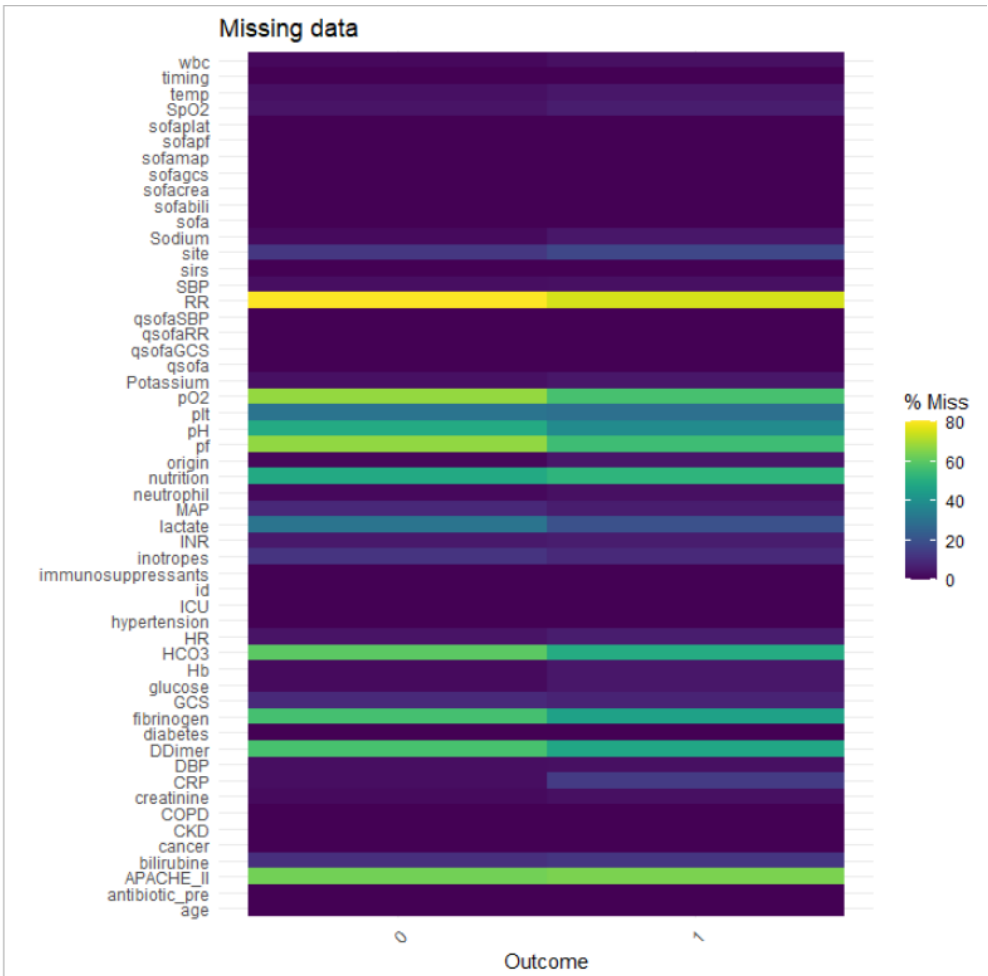
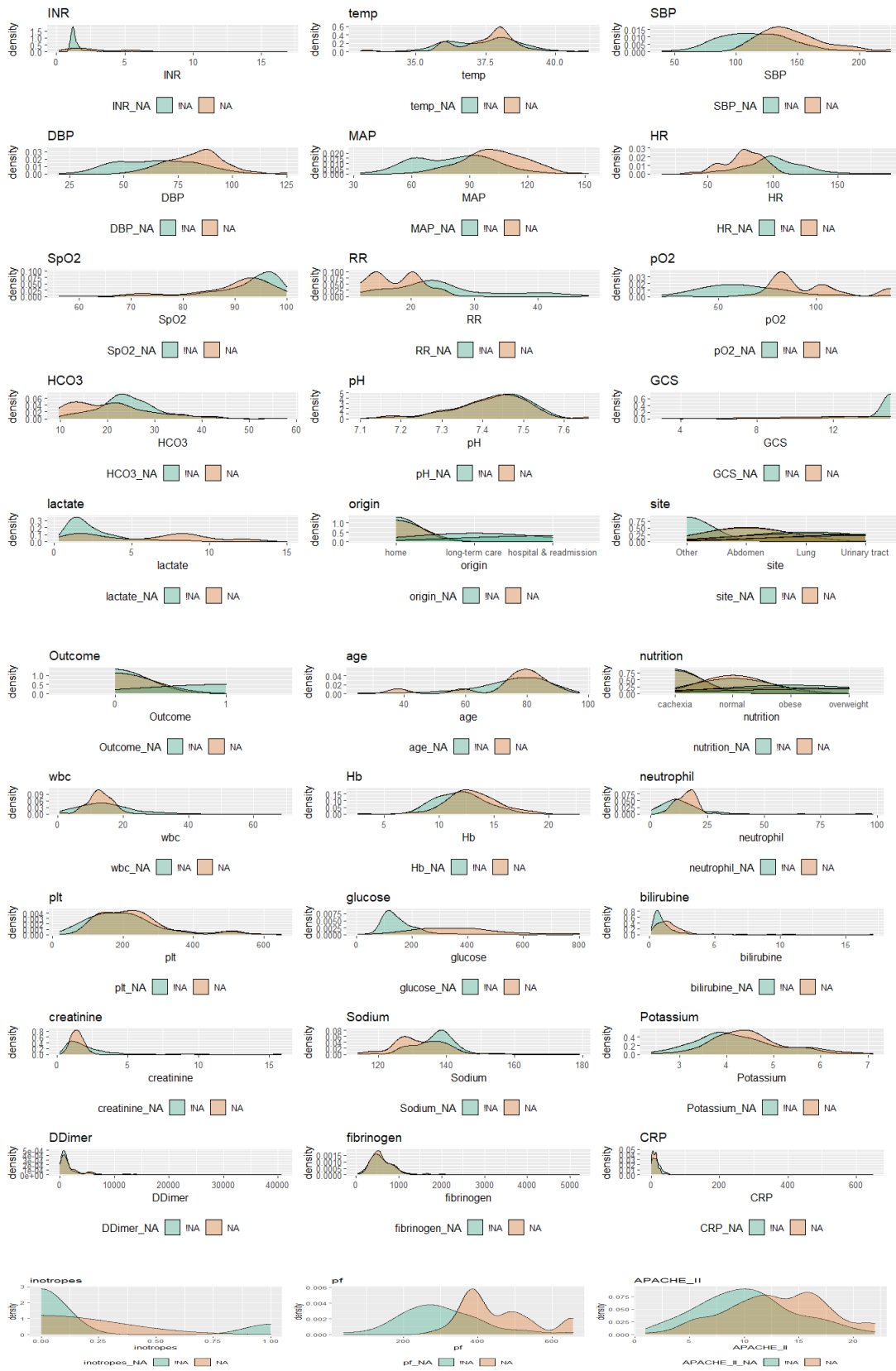


Supplemental Figure S1: Heat maps of missing data by outcome



Supplemental Figure S2: Results of imputation of missing data by chained random forest



Supplemental Table S1: Variables included in study

Demographics	Age	Gender		
Provenience	Home	Long-term care	Hospital readmission	
Comorbidities	Cancer	Hypertension	COPD	
	Diabetes	CKD		
	Immunosuppressants as home medication		Recent use of antibiotic therapy	
Nutritional Status	Underweight	Normal	Obese	Overweight
Delay to ED presentation	<12h	24-48h	>48h	
Site of infection	Abdomen	Lung	Urinary tract	Other
Clinical data at ED presentation	Systolic BP	Diastolic BP	MAP	
	Heart Rate	Peripheral Saturation	Respiratory Rate	
	Temperature	Glasgow Coma Scale (GCS)	Septic Shock	
Hematological exams	White blood cell count	Hemoglobin	Neutrophils	Platelets
	Glucose	Bilirubin	Creatinine	
	Serum sodium	Serum potassium	D-dimer	Fibrinogen
	C-Reactive Protein	INR		
Blood gas analysis	PaO2	PaO2/FiO2 ratio	Bicarbonate	
	pH	Lactate		
Clinical scores	APACHE II	SOFA	Vasopressors in ED	
Blood and urinary culture	Blood culture	Urinary culture		

Supplemental Material File S1: Sepsis Criteria

Levy et al. in 2001 well defined the diagnostic criteria for sepsis in a pivotal study. Based on what was reported in the paper, we defined septic patients as follows and we collected data accordingly.

General variables

Infection, documented or suspected, and some of the following:

Fever (core temperature $>38.3^{\circ}\text{C}$)

Hypothermia (core temperature $<36^{\circ}\text{C}$)

Heart rate $>90\text{ min}^{-1}$ or >2 SD above the normal value for age

Tachypnea

Altered mental status

Significant edema or positive fluid balance ($>20\text{ mL/kg}$ over 24 hrs)

Hyperglycemia (plasma glucose $>120\text{ mg/dL}$ or 7.7 mmol/L) in the absence of diabetes

Inflammatory variables

Leukocytosis (WBC count $>12,000\text{ uL}^{-1}$)

Leukopenia (WBC count $<4000\text{ uL}^{-1}$)

Normal WBC count with $>10\%$ immature forms

Plasma C-reactive protein >2 SD above the normal value

Plasma procalcitonin >2 SD above the normal value

Hemodynamic variables

Arterial hypotension (SBP $<90\text{ mm Hg}$, MAP <70 , or an SBP decrease $>40\text{ mm Hg}$ in adults or >2 SD below normal for age) SvO₂ $>70\%$

Cardiac index $>3.5\text{ L}\cdot\text{min}^{-1}\cdot\text{M}^{-2.3}$

Organ dysfunction variables

Arterial hypoxemia (PaO₂/FIO₂ <300)

Acute oliguria (urine output $<0.5\text{ mL}\cdot\text{kg}^{-1}\cdot\text{hr}^{-1}$ or 45 mmol/L for at least 2 hrs)

Creatinine increase $>0.5\text{ mg/dL}$

Coagulation abnormalities (INR >1.5 or aPTT $>60\text{ secs}$)

Ileus (absent bowel sounds)

Thrombocytopenia (platelet count $<100,000\text{ uL}^{-1}$)

Hyperbilirubinemia (plasma total bilirubin $>4\text{ mg/dL}$ or 70 mmol/L)

Tissue perfusion variables Hyperlactatemia ($>1\text{ mmol/L}$)

Decreased capillary refill or mottling