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ProM-Ex

Welcome!

Upload a CSV file, and I will detect and explain their anomalies.

Dataset Preview:

	ypnea	Hypotensie	SIRSCritHeartRate	Infusion	DiagnosticArtAstrup	concept:name	Age	Diagnc
0		☑	☑	☑	☑	ER Registration	85	☑
1						Leucocytes	None	
2						CRP	None	
3						LacticAcid	None	
4						ER Triage	None	

Select Case ID Column

case:concept:name

Select Activity Column

concept:name

Detected Anomalies:

case:conc	concept:name

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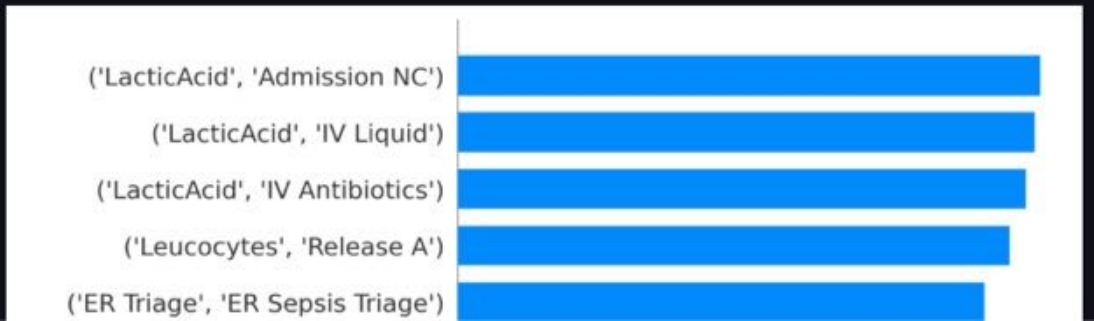
Detected Anomalies:

case:conc	concept:name
GK	Leucocytes CRP ER Registration ER Triage ER Sepsis Triage IV Liquid
IM	ER Registration ER Sepsis Triage ER Triage CRP Leucocytes LacticAcid
KM	ER Registration ER Triage ER Sepsis Triage IV Liquid LacticAcid CRP
NGA	ER Registration ER Triage ER Sepsis Triage IV Liquid CRP Leucocytes
NZ	ER Registration ER Triage ER Sepsis Triage Leucocytes CRP LacticAcid
OD	ER Registration CRP Leucocytes ER Triage ER Sepsis Triage IV Liquid
RO	ER Registration ER Sepsis Triage ER Triage CRP Leucocytes IV Liquid
XI	ER Registration ER Triage CRP Leucocytes LacticAcid ER Sepsis Triage
YIA	ER Registration ER Triage ER Sepsis Triage CRP Leucocytes LacticAcid
YX	ER Registration ER Triage ER Sepsis Triage IV Liquid IV Antibiotics CRP

SHAP Analysis

Feature Importance Plot



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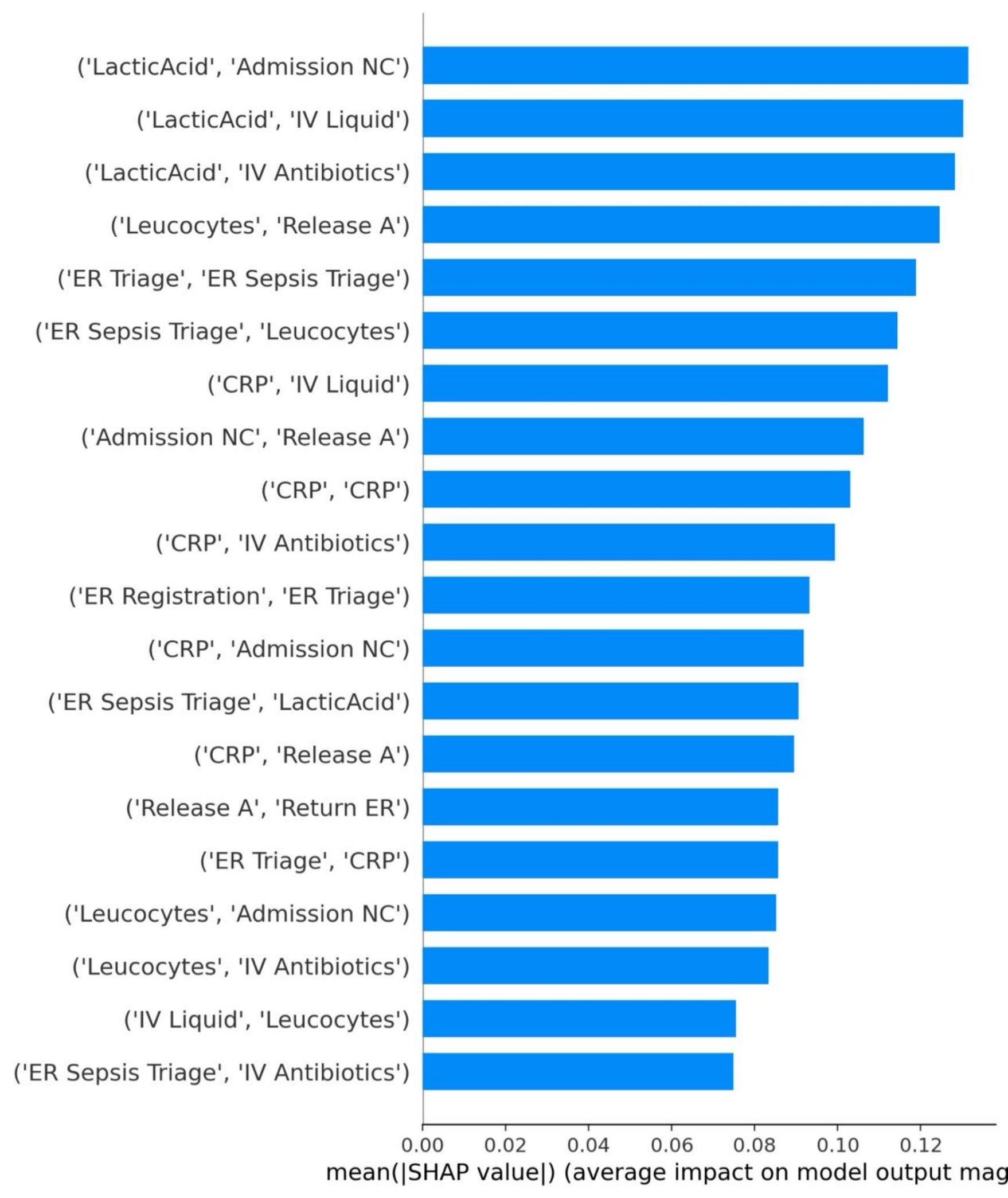
('LacticAcid', 'Admission NC')
('LacticAcid', 'IV Liquid')
('LacticAcid', 'IV Antibiotics')
('Leucocytes', 'Release A')
('ER Triage', 'ER Sepsis Triage')
('ER Sepsis Triage', 'Leucocytes')
('CRP', 'IV Liquid')
('Admission NC', 'Release A')
('CRP', 'CRP')
('CRP', 'IV Antibiotics')
('ER Registration', 'ER Triage')
('CRP', 'Admission NC')
('ER Sepsis Triage', 'LacticAcid')
('CRP', 'Release A')
('Release A', 'Return ER')
('ER Triage', 'CRP')
('Leucocytes', 'Admission NC')
('Leucocytes', 'IV Antibiotics')
('IV Liquid', 'Leucocytes')
('ER Sepsis Triage', 'IV Antibiotics')
0.00
0.02
0.04
0.06
0.08
0.10
0.12
mean(|SHAP value|) (average impact on model output mag

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LLM-based SHAP Explanation

1. Possible reasons for these features' importance in anomaly detection:

- **LacticAcid:** Lactic acid is a byproduct of anaerobic metabolism, which can occur in conditions such as sepsis or shock. Elevated lactic acid levels may indicate a severe underlying medical condition, making it an important feature for anomaly detection.
- **Admission NC:** Admission to the hospital through the non-critical care pathway may be an indicator of a less severe condition or a delayed presentation of a more severe condition. This feature can help differentiate between normal and anomalous patient trajectories.
- **IV Liquid:** Intravenous (IV) fluids are often administered to patients with dehydration or electrolyte imbalances. Excessive or inappropriate use of IV fluids can be a sign of an underlying medical condition or a deviation from standard care.
- **IV Antibiotics:** IV antibiotics are used to treat bacterial infections. Their presence in the patient's record may indicate a severe infection or a deviation from standard antibiotic prescribing practices.
- **Leucocytes:** Leucocytes are white blood cells that fight infection. Elevated leucocyte counts may indicate an infection or an inflammatory response.
- **Release A:** Release A is a triage category indicating a patient with a non-urgent condition. The presence of this feature in the patient's record may suggest a delayed presentation of a more severe condition or a misclassification of the patient's acuity level.
- **ER Triage:** ER Sepsis Triage is a specific triage protocol used to identify patients with suspected sepsis. The presence of this feature in the patient's record may indicate a high risk of sepsis, which is a life-threatening condition.

2. Impact of these features on the overall anomaly detection process:

- These features provide valuable information for anomaly detection by highlighting potential deviations from normal patient trajectories.
- By considering the importance scores of these features, the anomaly detection algorithm can prioritize cases that require further investigation or intervention.
- The presence of multiple important features in a patient's record may indicate a more complex or

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- These features provide valuable information for anomaly detection by highlighting potential deviations from normal patient trajectories.
- By considering the importance scores of these features, the anomaly detection algorithm can prioritize cases that require further investigation or intervention.
- The presence of multiple important features in a patient's record may indicate a more complex or severe condition, requiring a more thorough analysis.

3. Recommendations for handling or further analyzing these features in future analyses:

- **Further exploration:** Investigate the clinical context associated with these features to understand their relationship with anomalies.
- **Correlation analysis:** Examine the correlations between these features and other relevant patient characteristics to identify potential underlying patterns.
- **Time-series analysis:** Analyze the temporal trends of these features over time to identify changes or deviations that may indicate an anomaly.
- **Machine learning:** Utilize machine learning algorithms to develop predictive models that can identify patients at risk of developing anomalies based on these features.
- **Clinical validation:** Collaborate with clinicians to validate the findings and ensure that the anomaly detection process is aligned with clinical practice.