

# Diabetes Readmission Risk Prediction Report

## 1. Model Performance KPIs

The Random Forest model was evaluated on the unseen test set.

-> ROC-AUC Score: 0.6328

Class 1 (Readmitted) Performance:

- Precision: 0.19
- Recall: 0.24
- F1-Score: 0.22

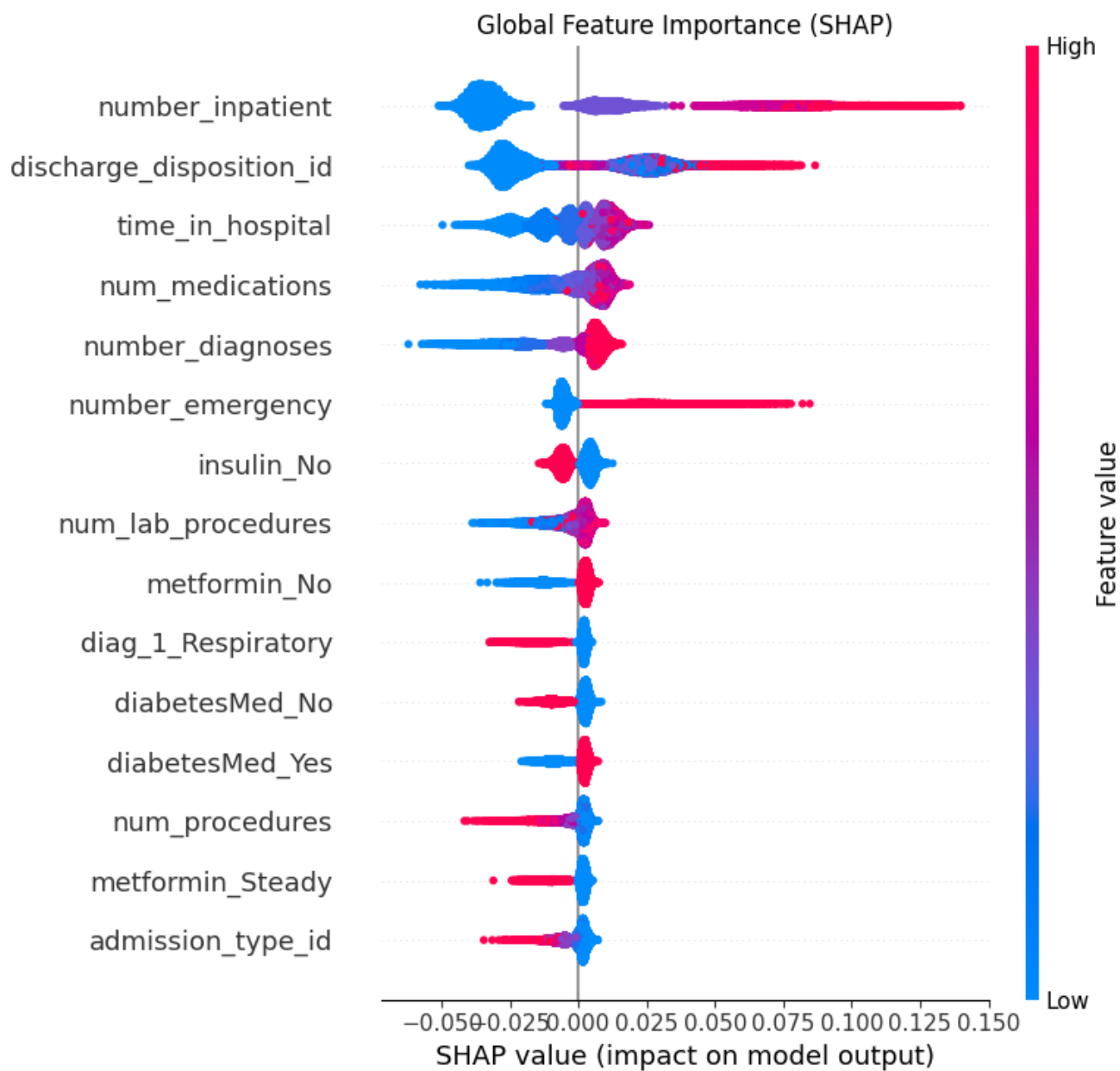
## 2. Top 10 High-Risk Patients

The table below lists the 10 patients with the highest predicted probability of readmission.

Prob (%)	Age	Diagnosis	# Inpatient	# Meds
67.1	[70-80)	Other	8	33
67.1	[50-60)	Genitourinary	4	34
66.8	[80-90)	Other	1	18
66.2	[80-90)	Circulatory	7	16
66.0	[50-60)	Other	3	18
65.7	[20-30)	Diabetes	4	13
65.6	[50-60)	Digestive	7	26
65.5	[50-60)	Digestive	1	17
65.4	[80-90)	Other	4	16
65.1	[30-40)	Diabetes	5	9

## 3. Global Feature Importance (SHAP)

This plot shows the top features that impact the model's predictions across all patients. Longer bars indicate greater importance.



# 4. Local Patient-Specific Explanations

The following waterfall plots explain the prediction for the top 3 high-risk patients. Red bars increase risk, blue bars decrease it.

