

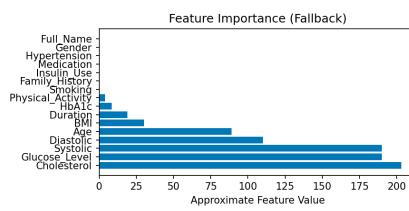
# Clinical Report

Generated: 2025-12-04 13:15:53

## Stage: PDR

### Metadata Snapshot

Name: Sebastian  
Age: 89  
Gender: Male  
Systolic (mmHg): 190  
Diastolic (mmHg): 110  
BMI: 30.1  
Glucose: 190  
HbA1c: 8.5  
Cholesterol: 203  
Smoking: Yes  
Hypertension: Yes  
Diabetes Duration: 19



### Summary

- Clinical Report — Ophthalmologist
- Patient: Name: Sebastian, Age: 89, BMI: 30.1
- Predicted stage: PDR
- Model confidence: 85.74%

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- Risk score: 96.05%
- Findings (automated lesion quantification):
  - Microaneurysms: 20.31%
  - Exudates: 21.52%
  - Hemorrhages: 2.56%
  - Cotton Wool: 0.00%
  - Neovascularization: 30.00%
  - Total Lesion Load: 44.39%
- Clinical interpretation:
  - Features consistent with proliferative DR (neovascularization). Immediate retina specialist referral recommended (consider anti-VEGF / PRP).
- Model & Explainability:
  - Multi-model fusion: CNN ensemble (EfficientNet, ResNet50, ViT) + metadata models (RF, XGBoost, stacked ensemble).
  - Explainability outputs available: GradCAM++, LIME, SHAP — review heatmaps and overlay masks.
- Performance metrics:
  - Accuracy: 0.947
  - F1-score: 0.938
  - AUC/ROC: 0.971
- Suggested clinical action items:
  1. Correlate with slit-lamp exam and fundus exam.
  2. If macular edema suspected, obtain OCT imaging.
  3. For suspected PDR, arrange urgent retina referral for potential PRP/anti-VEGF.
  4. Document lesion masks if available for audit.

