

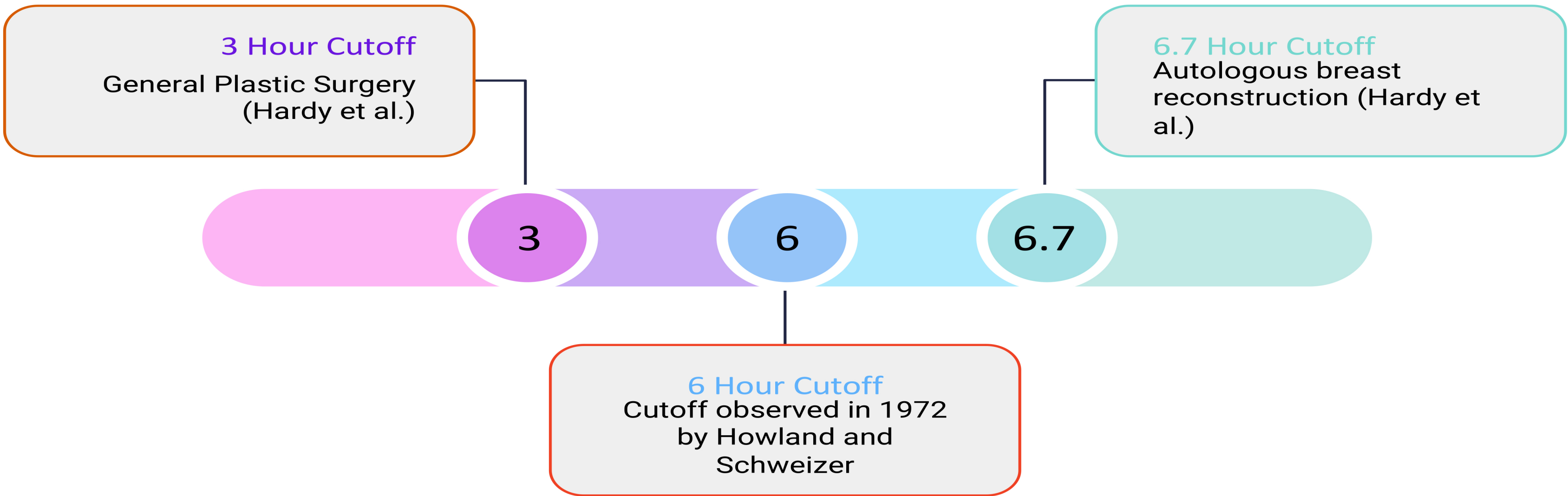
Intraoperative Time Is an Independent Predictor of Postoperative Outcomes in DIEP Flap Breast Reconstruction: A Multivariate Analysis of 1000 Flaps

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Introduction



Purpose

This study evaluates the impact of Operative Time (OT) on

Length of stay (LOS) and extended LOS (≥5 days) (eLOS)

Overall morbidity

Individual complications

Unplanned reoperation during the hospital course(UR)

Methods

Patients who underwent only bilateral DIEP flaps from 2010-2021 by two senior surgeons (NTH, SST) with standardized surgical and postoperative protocols were retrospectively reviewed. **1000 flaps (500 patients)** were analyzed with **multivariate regressions** to adjust for potential confounders. **Operative Time** was evaluated **per hour** and **intervals** (i.e. 25%iles rounded to nearest hour).

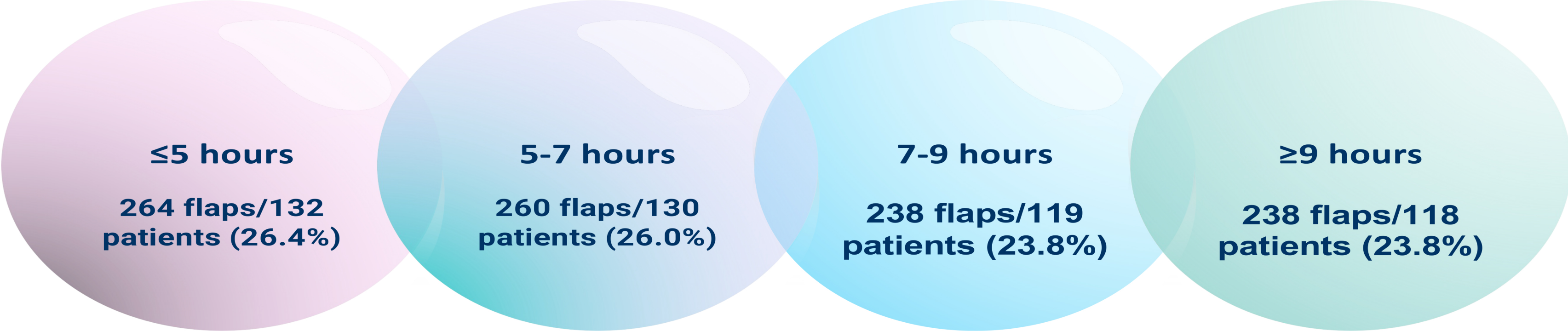


Table 1. Risk-adjusted Comparisons of OT Intervals

Overall Complication (Helmert Contrast)			
OT Category (hours)	Occurrence (%)	Odds Ratio (95% Confidence Interval)	P-value
1 (≤5)	23.5	0.689 (0.388-1.395)	0.200
2 (5-7)	45.7	0.830 (0.460-1.498)	0.540
3 (7-9)		0.7743 (0.359-1.6676)	0.510
4 (≥9)		Reference Only	
eLOS (≥5 days) (Helmert Contrast)			
OT Category (hours)	Occurrence (%)	Odds Ratio (95% Confidence Interval)	P-value
1 (≤5)	3.8	0.1051 (0.0108-0.9696)	0.050
2 (5-7)	25.8	0.7705 (0.3187-1.8627)	0.56
3 (7-9)		0.1834 (0.060-0.5594)	<0.001
4 (≥9)		Reference Only	
UR (Helmert Contrast)			
OT Category (hours)	Occurrence (%)	Odds Ratio (95% Confidence Interval)	P-value
1 (≤5)	3.8	0.601 (0.189-1.912)	0.39
2 (5-7)	7.6	0.573 (0.188-1.742)	0.33
3 (7-9)		0.3355 (0.0813-1.3833)	0.13
4 (≥9)		Reference Only	

Table 2. Risk-adjusted Outcomes Per Hour of OT

Outcome	Odds Ratio (95% Confidence Interval)	P-value
eLOS (≥5 Days)	1.585 (1.443-1.766)	<0.001
UR	1.0867 (0.975-1.202)	<0.001
Overall Complication	1.192 (1.120-1.272)	<0.001
Flap-site Complication	1.187 (1.108-1.273)	<0.001
Breast Wound	1.0879 (1.002-1.178)	<0.0001
Flap Compromise	1.101 (0.970-1.236)	<0.001
Flap Loss	1.091 (0.8597-1.3256)	<0.001
Breast Fat Necrosis	1.146 (1.146-1.250)	<0.001
Donor-site Complication	1.117 (1.047-1.192)	<0.001
Abdominal Wound	1.112 (1.030-1.199)	<0.001
Abdominal Fat Necrosis	1.069 (0.928-1.213)	<0.001
Medical Complication	1.150 (1.008-1.300)	<0.001
Pulmonary Embolism	1.143 (0.8993-1.3941)	<0.001
Blood Transfusion	1.149 (1.007-1.297)	<0.001

The following potential confounders were adjusted for with multivariate analysis:

- Age
- BMI
- Race
- Smoking
- Diabetes
- Hypertension
- Autoimmune
- Radiation Therapy
- Chemotherapy
- Umbilicus Removal
- Microsurgeon Experience
- Perforator Variables (e.g. size, row, number)
- Intraoperative Variables (e.g. anastomosis revision)

Results

Figure 1 Multivariate Linear Regression Equation Predicting LOS from OT

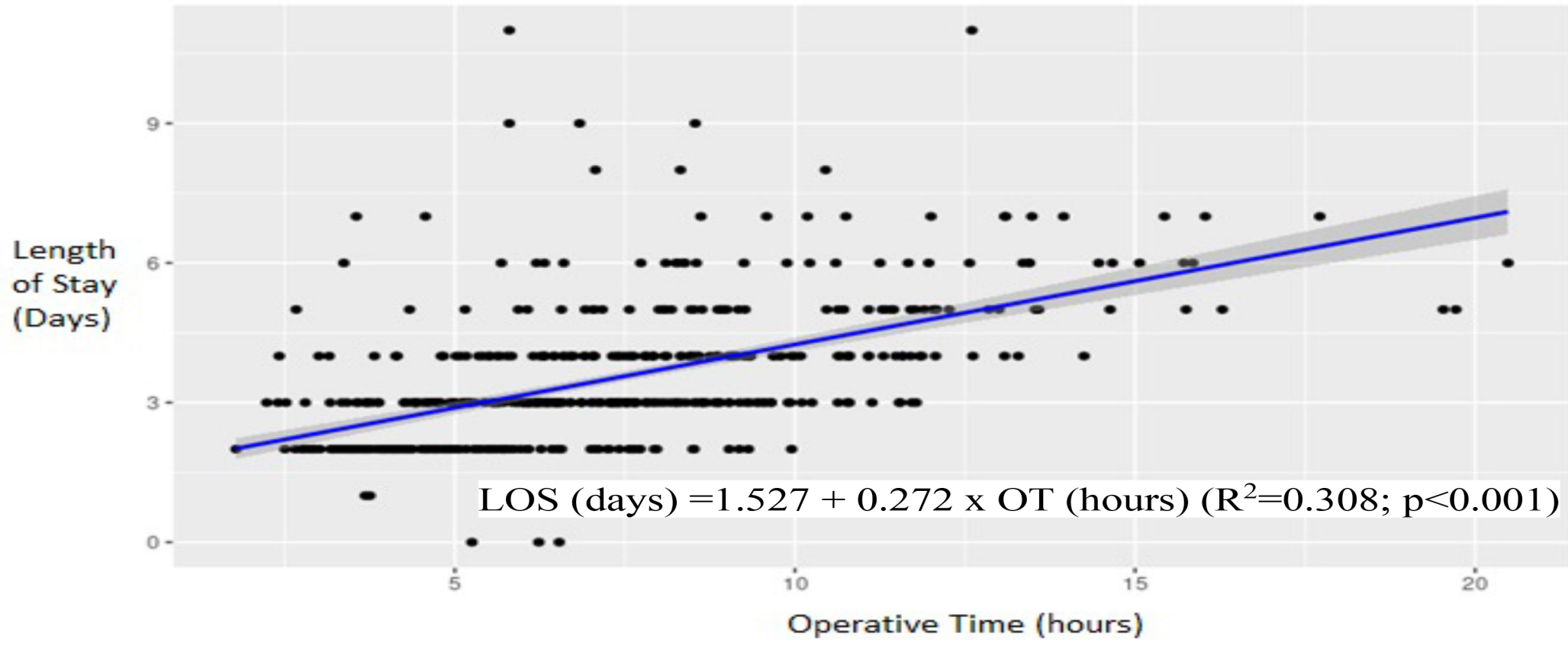


Figure 2. Predicted Probabilities for Overall Complication

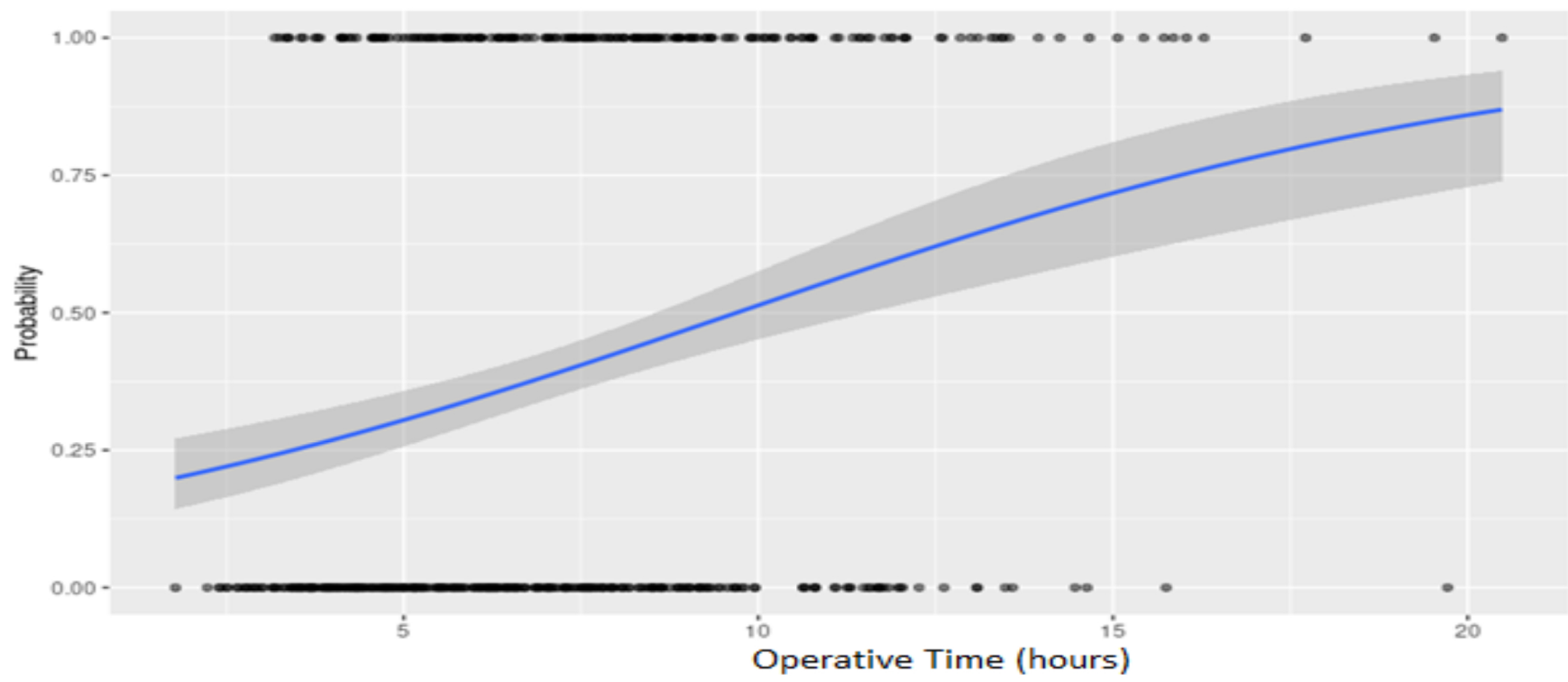
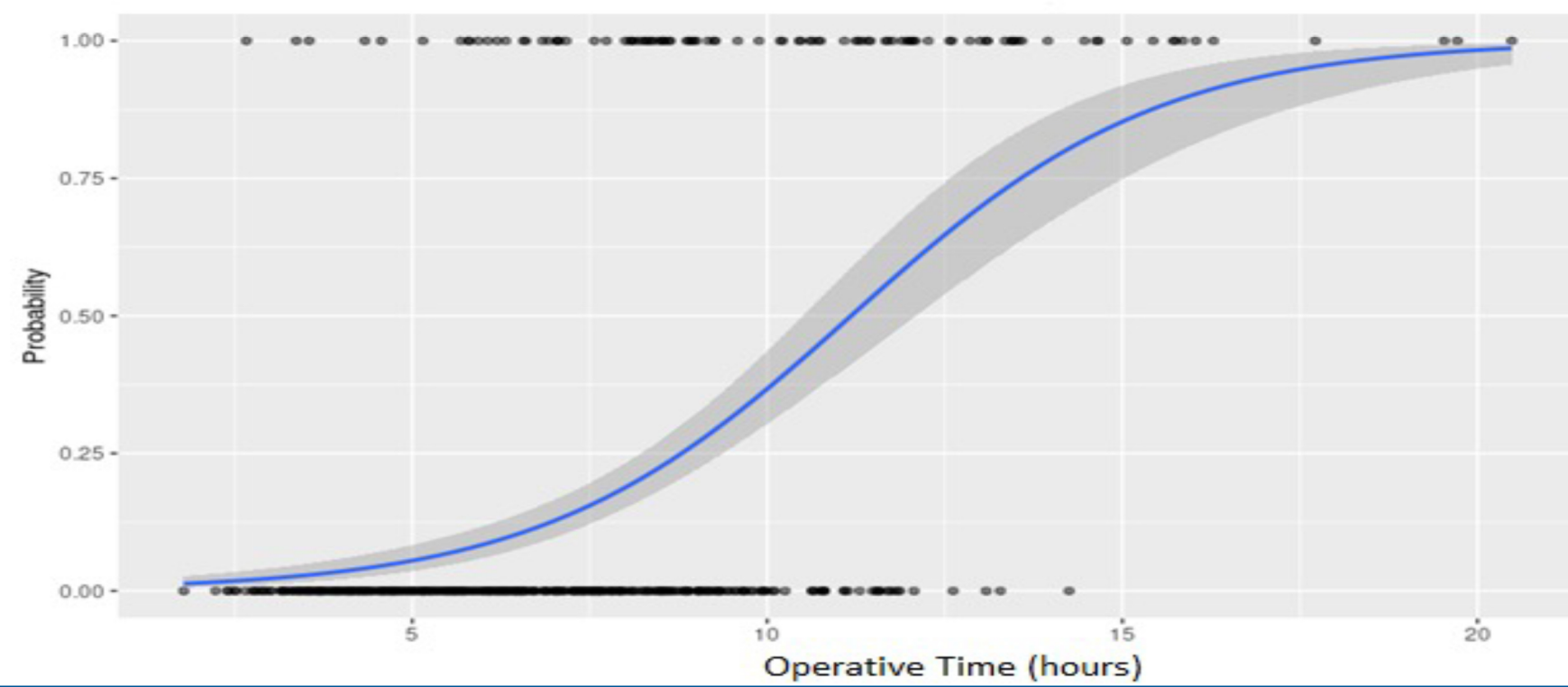


Figure 3. Predicted Probabilities for eLOS



Conclusions & Limitations

Conclusions

OT per hour is a universal predictor of LOS, UR, and postoperative morbidity

Overall, Donor-site, Flap-site, and Medical Complications (OT per hour)

Length of Stay (OT per hour)

Unexpected Reoperations during Hospital Stay (OT per hour)

Extended Length of Stay (OT per hour and interval)
5 hour and 9 hours are critical cutoffs beyond which risk increases

Limitations

Retrospective Study

Lacking Socioeconomic Status Risk-adjustment

Possible Lack of Generalizability to other practices