

Introduction

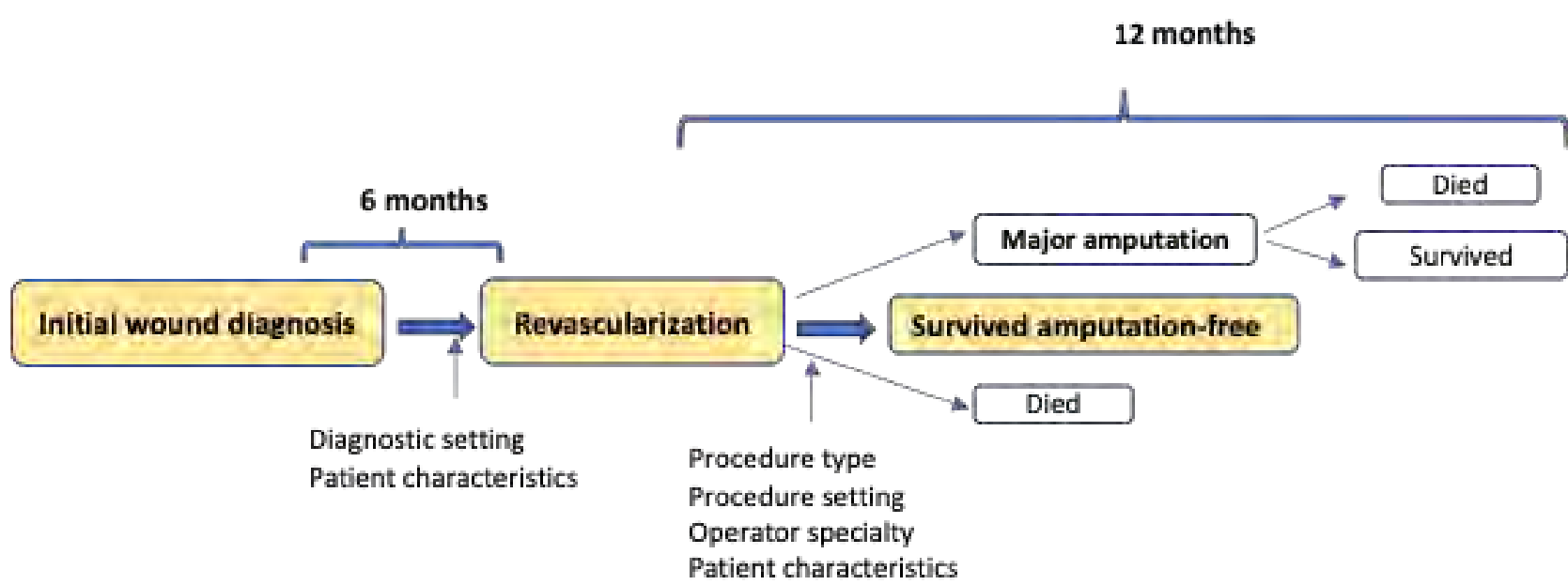
- Peripheral arterial disease (PAD) is prevalent among patients with diabetic lower extremity (DLE) wounds and may increase the risk of amputation.
- Revascularization (RV) procedures may improve healing and prevent amputations, yet significant variations in its use and outcomes have been described for racial/ethnic and income groups.
- The pathways underlying these variations are incompletely understood and may include differences in health care settings and providers.

Objectives

- Examine the role of initial diagnostic setting for DLE wounds among PAD patients and the receipt of peripheral RV among 100% fee-for-service (FFS) Medicare patients.**
- Among patients receiving RV, examine procedure setting, type, and operator specialty (for endovascular procedures) and their association with amputation-free survival.**

Methods

- Identified 303,566 Medicare FFS patients aged 66 and older with preexisting PAD and a new DLE wound diagnosis between 2017 to 2019
- Defined race as White, Black, Hispanic, Other, and low-income as dual Medicare-Medicaid insurance (“dual” status)
- Identified initial wound diagnosis setting as office, ER, inpatient hospital outpatient, skilled nursing facility, or home health
- Identified all RV procedures for 6 months, and major amputations (AMPs) and deaths for 12 months after RV



- Excluded patients who underwent amputation or died during the first 6 months after wound diagnosis and before RV
- Ascertained procedure type (surgical vs. endovascular), setting (inpatient, hospital outpatient, office), and operator specialty (vascular surgery [VS], Interventional cardiology [IC] or radiology [IR], other) using CPT codes and information present on claims
- Estimated the associations between race/ethnicity and income, initial wound diagnosis setting and the odds of RV at 6 months
- Among patients receiving RV, estimated probabilities of amputation-free survival by demographic group and procedure type, and the associations between demographics, initial wound setting, procedure type, and odds of major amputation 12 months post-RV
- Among patients receiving endovascular RV, estimated the associations between demographics, procedure setting (office vs. inpatient or hospital outpatient), operator specialty, and odds of major amputation 12 months post-RV
- All odds were adjusted for patient risk factors identified from claims (CLTI, infection, prior procedures, age, sex, comorbidities)

Table 1

Settings, procedures and outcomes (%)	White 231,705 (76.3%)	NH Black 40,041 (13.2%)	Hispanic 22,437 (7.4%)	Dual 99,109 (32.6%)	Non-dual 204,457 (67.4%)
Initial wound diagnosis Office	53.2	39.8	46.5	57.9	36.2
Initial wound diagnosis ER	12.1	17.7	16.3	12.2	15.3
Initial wound diagnosis Inpatient	7.7	10.7	9.7	7.9	9.0
Initial wound diagnosis Hospital Outpatient	11.3	10.4	9.2	11.7	9.5
Initial wound diagnosis SNF/Home Health	14.4	20.0	16.2	8.8	28.6
Any RV* at 6 months	15.4	22.5	25.4	17.2	17.3
Surgical RV*	2.8	3.2	2.4	2.3	3.1
Amputations after surgical RV	12.7	27.1	22.2	21.2	13.5
Endovascular RV*	12.6	19.3	23.0	14.9	14.2
Endovascular RV operator*** is VS	49.0	49.6	43.1	46.2	49.1
Endovascular RV operator*** is IC	27.8	25.7	29.7	27.2	27.7
Endovascular RV operator*** is IR	5.6	6.6	7.7	7.1	5.8
Amputations after endovascular RV*** (VS)	11.8	21.4	18.9	17.9	13.0
Amputations after endovascular RV*** (IC)	9.7	18.5	18.8	16.5	10.6
Amputations after endovascular RV*** (IR)	11.1	18.2	14.4	15.4	11.6

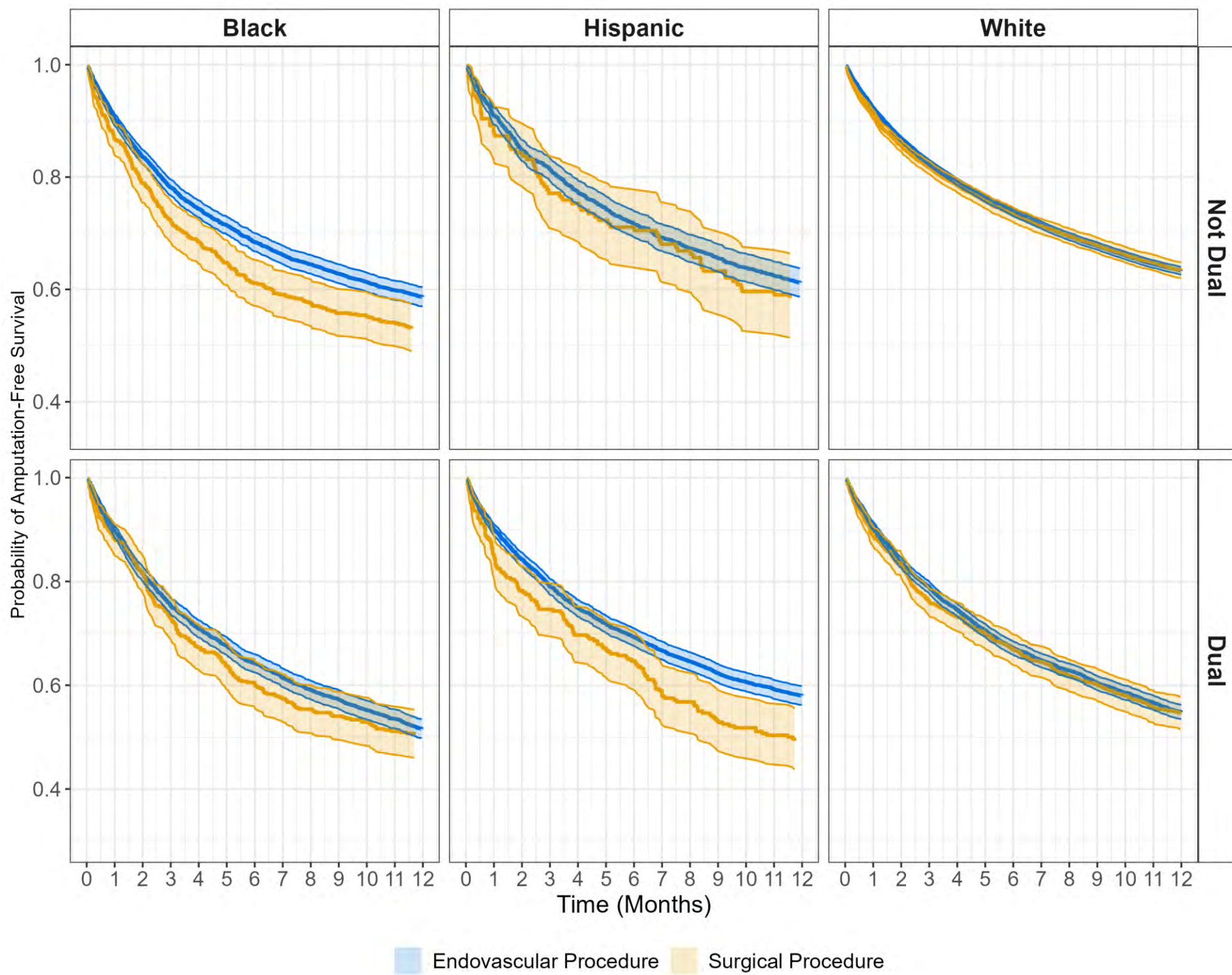
*Percentages among those who survived, and had RV within 6 months of wound diagnosis, and no amputation before the RV

**Percentage among those who had surgical RV

***Percentages among those who had endovascular RV

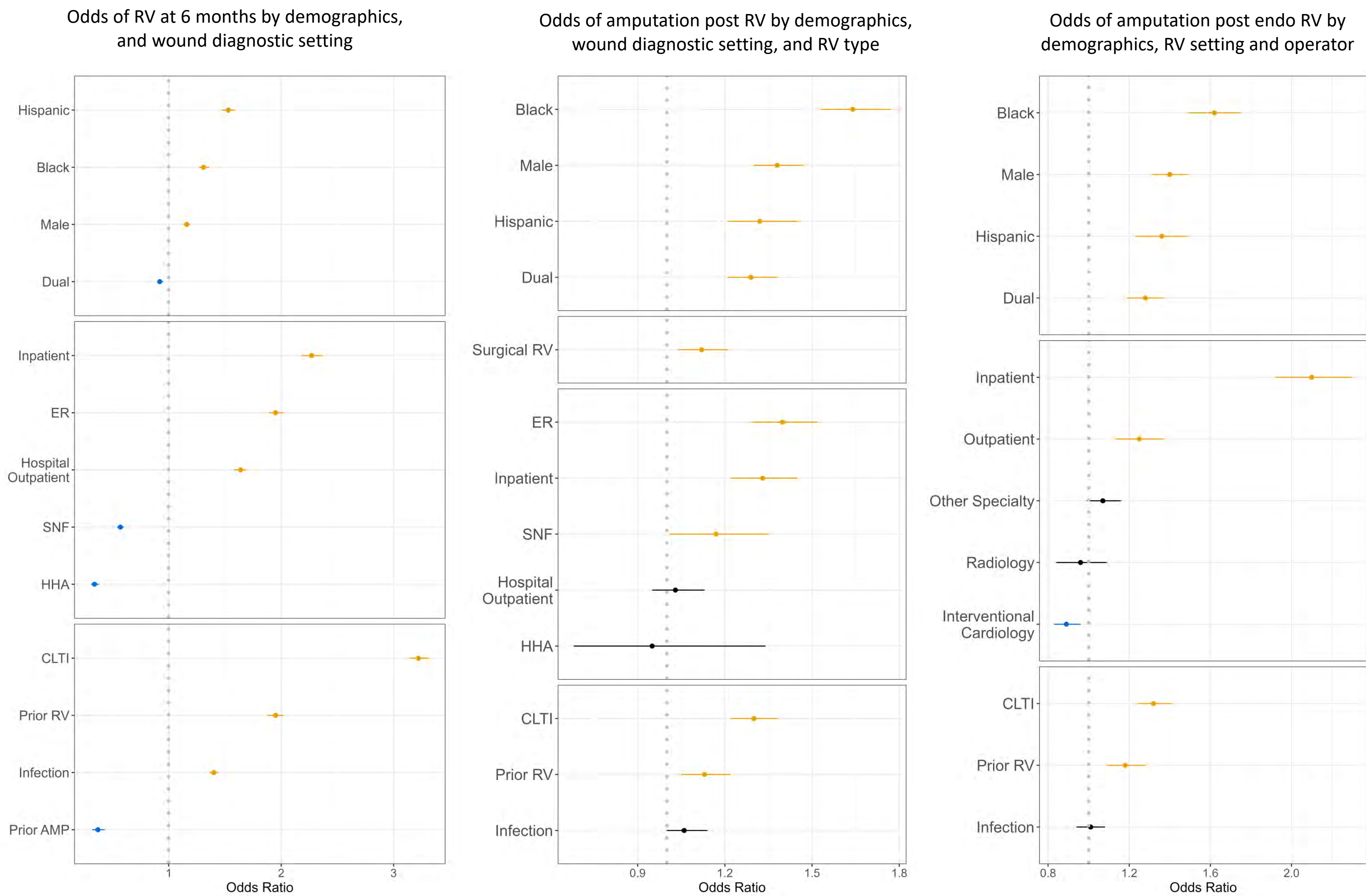
Figure 2

Amputation-free survival for low and higher income White, NH Black and Hispanic patients 12 months after undergoing surgical vs endovascular RV



Results

Figure 1



Summary of Results

- Hispanic, Black and low-income older DLE wound patients are more often diagnosed in the ER and inpatient setting.
- Hispanic and Black patients have higher rates of RV, independent of CLTI or other clinical risk factors.
- Black, Hispanic, and low-income patients have higher odds of major amputation and lower probability of surviving amputation-free 12 months post-RV, even after controlling for disease severity and clinical risk.
- In this population-based cohort, surgical RV is associated with higher odds of amputation and lower amputation free survival; the findings is mainly due to differences among Black and Hispanic patients and may be related to unmeasured higher risk among surgical candidates.
- Among those receiving endovascular procedures, inpatient and hospital outpatient settings are associated with higher risk of amputation, likely due to unmeasured severity. Procedures performed by interventional cardiologists have lower risk of amputation compared to other specialists, possibly due to lower patient severity.

Conclusions

- Despite sustained attention, DLE wounds continue to pose a significant public health challenge, representing an endpoint for complex disease and poor outcomes including high rates of amputation and death.
- The findings highlight the need for earlier upstream interventions, focusing on prevention of diabetes complications and early diagnosis of PAD.