

Predictors of 30-day Hospital Readmission After Autologous vs. Implant-Based Breast Reconstruction: A 16-Year Analysis of 175,474 Patients

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Introduction

- Comorbidities that impair wound healing, increase infection risk, and compromise tissue viability influence rates of hospital readmission after autologous reconstruction (AR) and implant-based reconstruction (IBR).
- This study aimed to evaluate patient factors that increase risk for 30-day hospital readmission after AR and IBR.
- Our secondary aim was to identify differences in the comorbidities that affect readmission risk after IBR versus after AR.

Methods

- Patients from 2005 to 2021 were selected by AR and IBR current procedural terminology codes from the American College of Surgeons National Surgical Quality Improvement Program database.
- A multivariable regression model identified the significant predictors of unplanned readmission.

Figure 1. Predictors of 30-Day Readmission after IBR

Predictors for Readmission	Adjusted Odds Ratio	95% CI	P-value
Bleeding disorder	2.618	2.078–3.298	<0.0001
Sepsis	2.161	1.43–3.266	0.0003
COPD	1.837	1.436–2.350	<0.0001
Obesity	1.713	1.602–1.832	<0.0001
Cancer	1.592	1.254–2.022	0.0001
Inpatient	1.549	1.454–1.649	<0.0001
Preoperative infection	1.488	1.009–2.193	0.0448
Chronic steroid use	1.417	1.176–1.708	0.0002
Hypoalbuminemia	1.351	1.046–1.747	0.0213
White	1.303	1.187–1.429	<0.0001
Smoker	1.261	1.147–1.387	<0.0001
Black	1.217	1.063–1.392	0.0044
Diabetes mellitus	1.201	1.066–1.353	0.0026
Hypertension	1.154	1.069–1.246	0.0002
Anemia	1.133	1.048–1.225	0.0018

Figure 2. Most Frequent Complications Resulting in Readmission After IBR

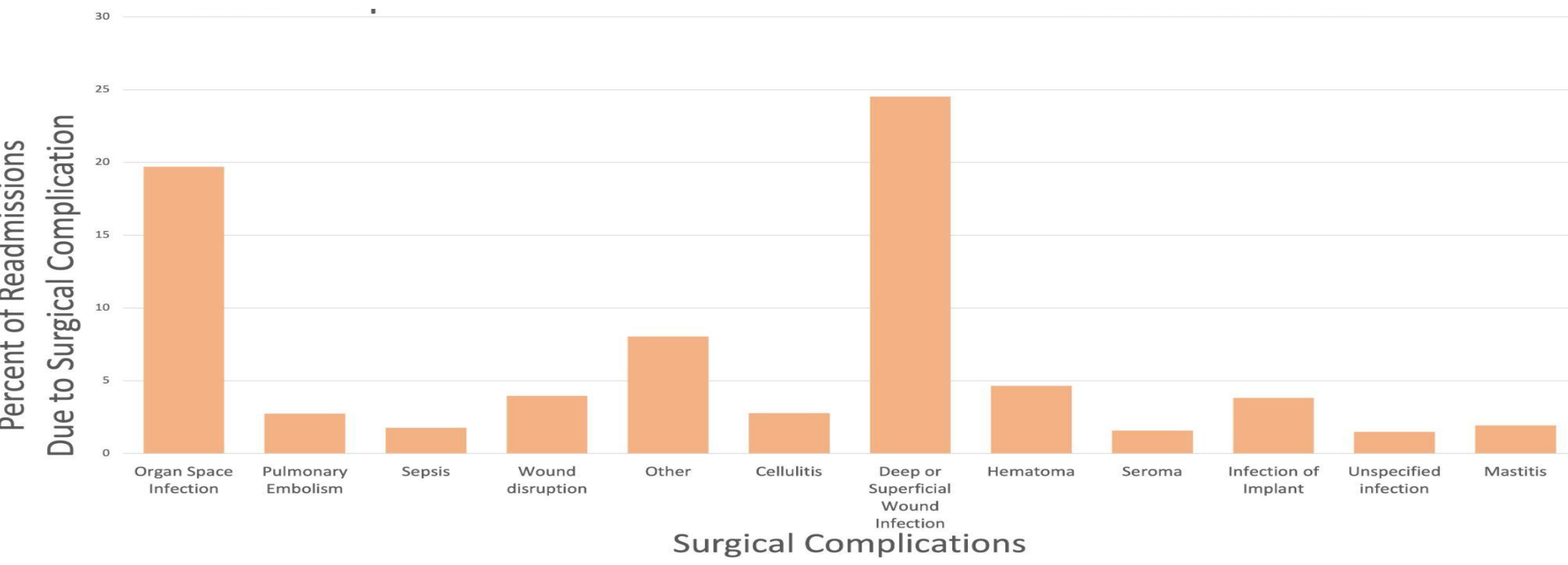


Figure 3. Trends in Complications After IBR Over Time

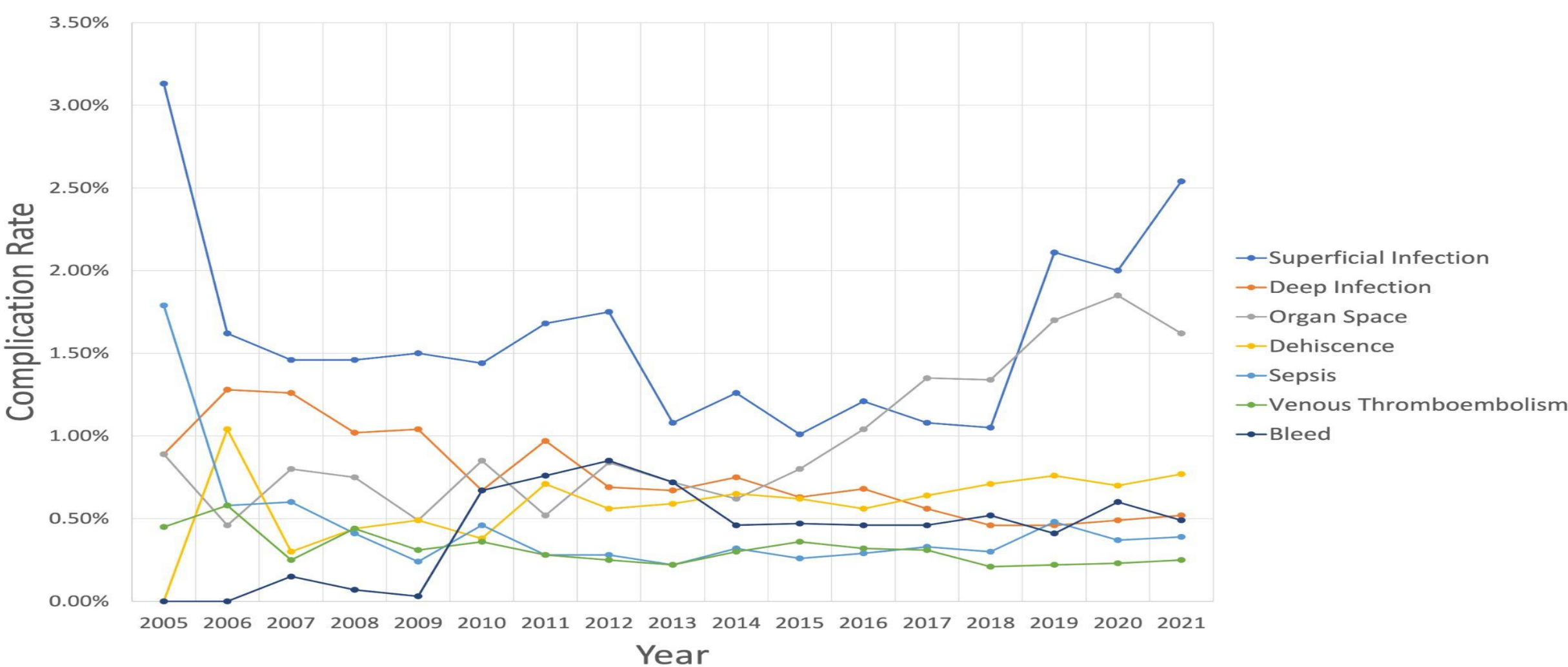


Figure 4. Predictors of 30-Day Readmission after AR

Predictors for Readmission	Adjusted Odds Ratio	95% CI	P-value
Dialysis	3.866	1.052–14.209	0.0417
Malnutrition	3.201	1.496–6.85	0.0027
COPD	1.854	1.192–2.883	0.0061
Obesity	1.831	1.639–2.046	<0.0001
Inpatient	1.743	1.368–2.220	<0.0001
Chronic steroid use	1.611	1.172–2.215	0.0033
White	1.479	1.269–1.723	<0.0001
Smoker	1.438	1.213–1.705	<0.0001
Diabetes mellitus	1.345	1.124–1.608	0.0012
Black	1.272	1.040–1.557	0.0194
Hypertension	1.204	1.066–1.361	0.0028

Figure 5. Most Frequent Complications Resulting in Readmission After AR

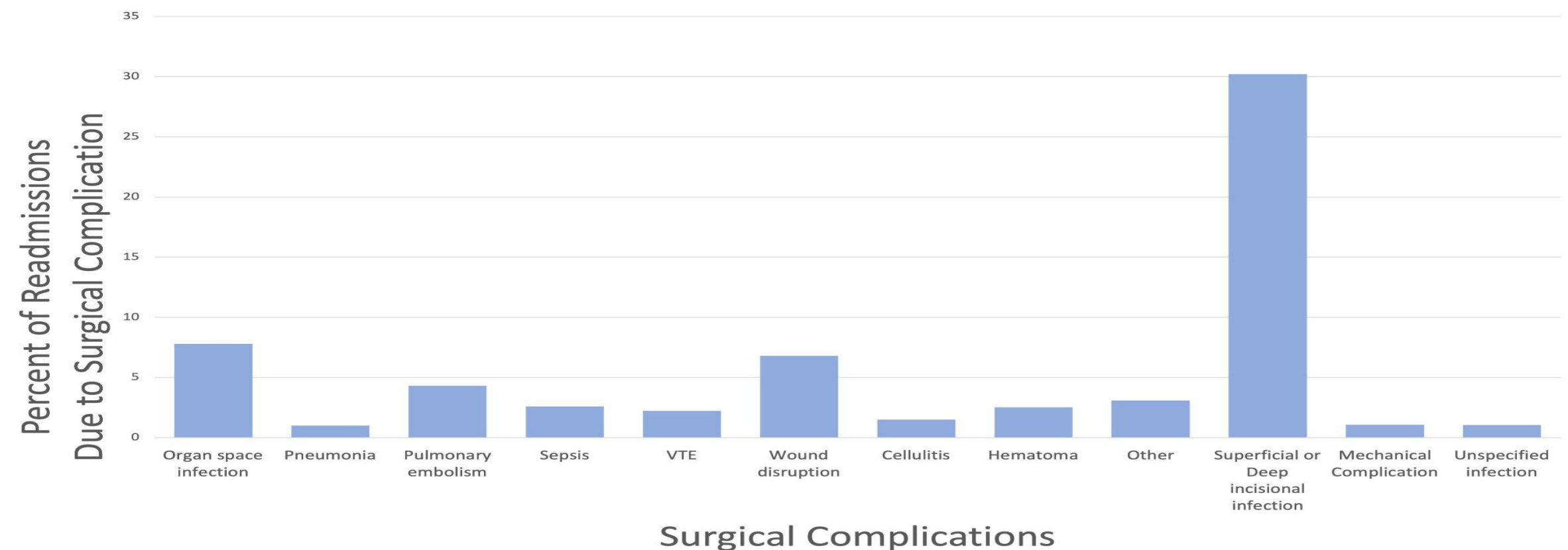
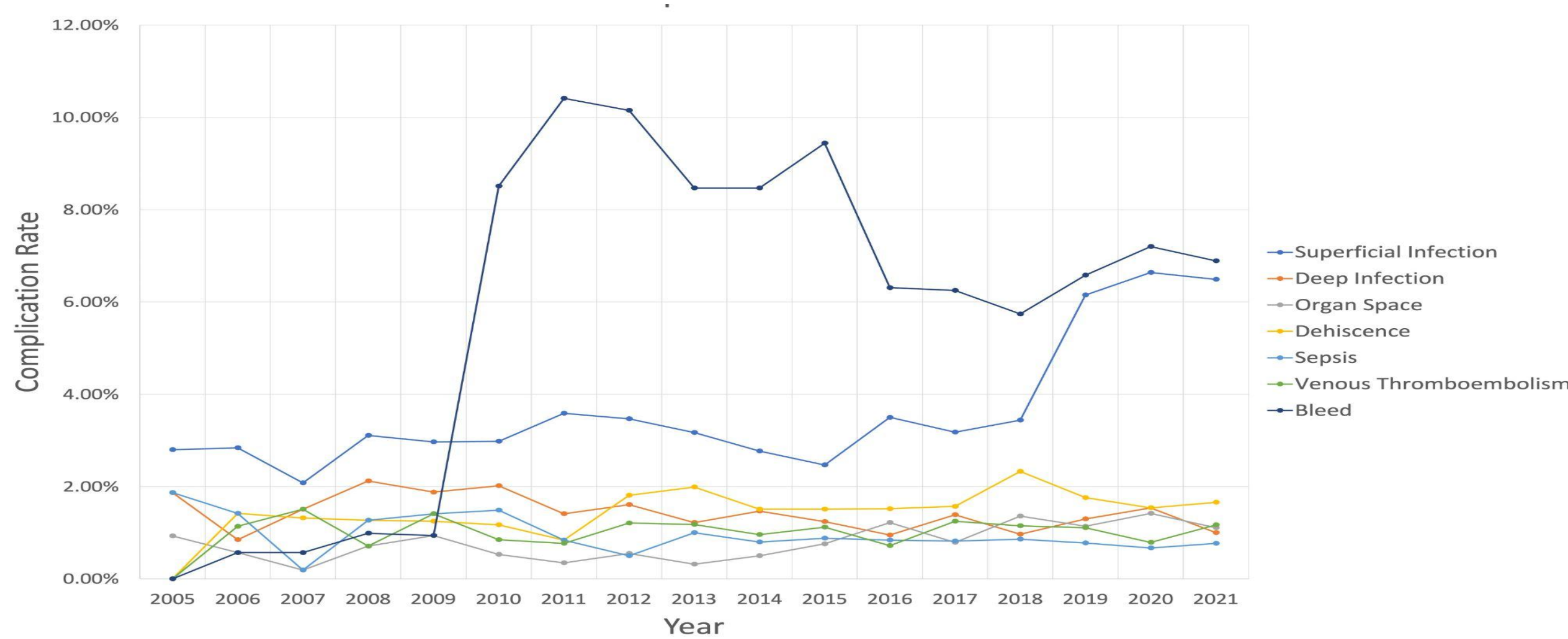


Figure 6. Trends in Complications After AR Over Time



Results

- Comorbidities that increase risk for readmission after AR but not IBR include dialysis (OR=3.87; p=0.042) and malnutrition (OR=3.20; p=0.003).
- Risk factors for readmission after IBR but not AR include bleeding disorder (OR=2.62; p<0.0001), previous infection (OR=1.49; p=0.045), recent sepsis (OR=2.16; p=0.0003), anemia (OR=1.13, p=0.0018), and hypoalbuminemia (OR=1.35, p=0.0213).
- Predictors of unplanned readmission after both methods include chronic obstructive pulmonary disorder, obesity, inpatient status prior to procedure, Black or White race, chronic steroid use, smoking, diabetes, and hypertension.

Conclusions

- These findings may be used to guide preoperative discussions regarding optimization of risk factors.
- While AR and IBR are often combined into one category for discussion of factors that increase complication risk, our study suggests that they differ with regard to the comorbidities that increase risk for hospital readmission.