

Clinical and Economic Outcomes Associated with Recurrent Ventral and Incisional Hernia Repairs: A Systematic Literature Review

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OBJECTIVE

To assess the literature reporting the clinical and economic outcomes associated with ventral and incisional hernia repairs.

CONCLUSIONS



There is an unmet need for improved characterization of the economic burden of recurrent VHRs.



There is heterogeneity in both the definition of recurrence and definition of outcome measures.



Obese patients tend to have higher healthcare costs (at least \$10K) and more complications.



Open repair had more complications and a longer length of stay relative to laparoscopic and robotic surgeries.

INTRODUCTION

Ventral Hernia Repairs (VHRs)

- A ventral hernia occurs when abdominal contents push through weakened lining of the abdominal wall and can only be fixed with surgery¹
- 360,000 surgeries performed annually in the US²

Recurrent VHRs

- 2nd most common cause of readmission²
- \$3.2 billion annual cost as of 2006³



METHODS

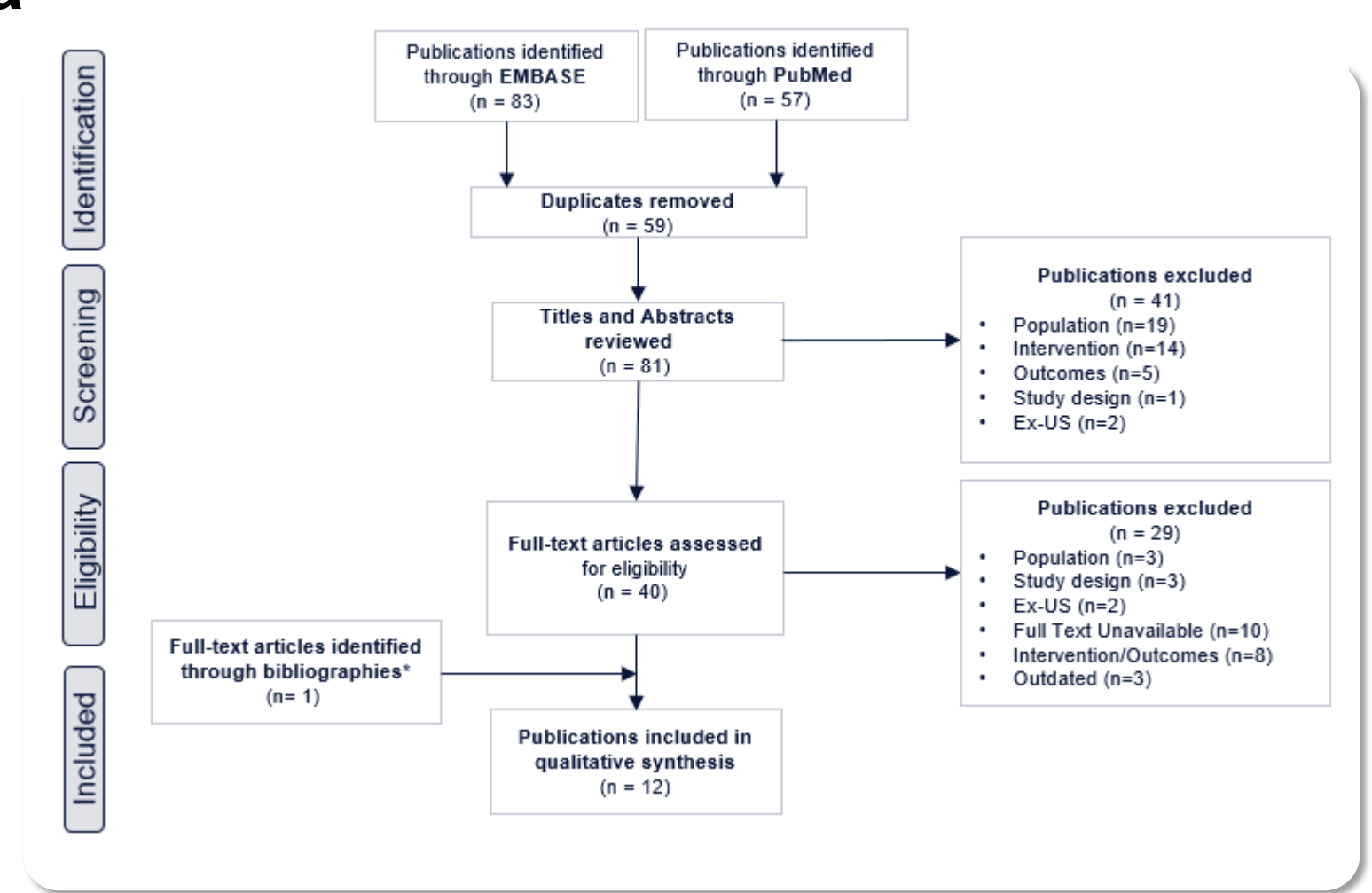
Information Sources and Eligibility Criteria

- PubMed and EMBASE
- From 2010 to 2021; full-text publications in the US, adult (18+) human subjects only

Risk of Bias Assessment

- Studies were assigned a level of evidence⁴
- Individual study quality based on quality assessment tools from NHLBI⁵

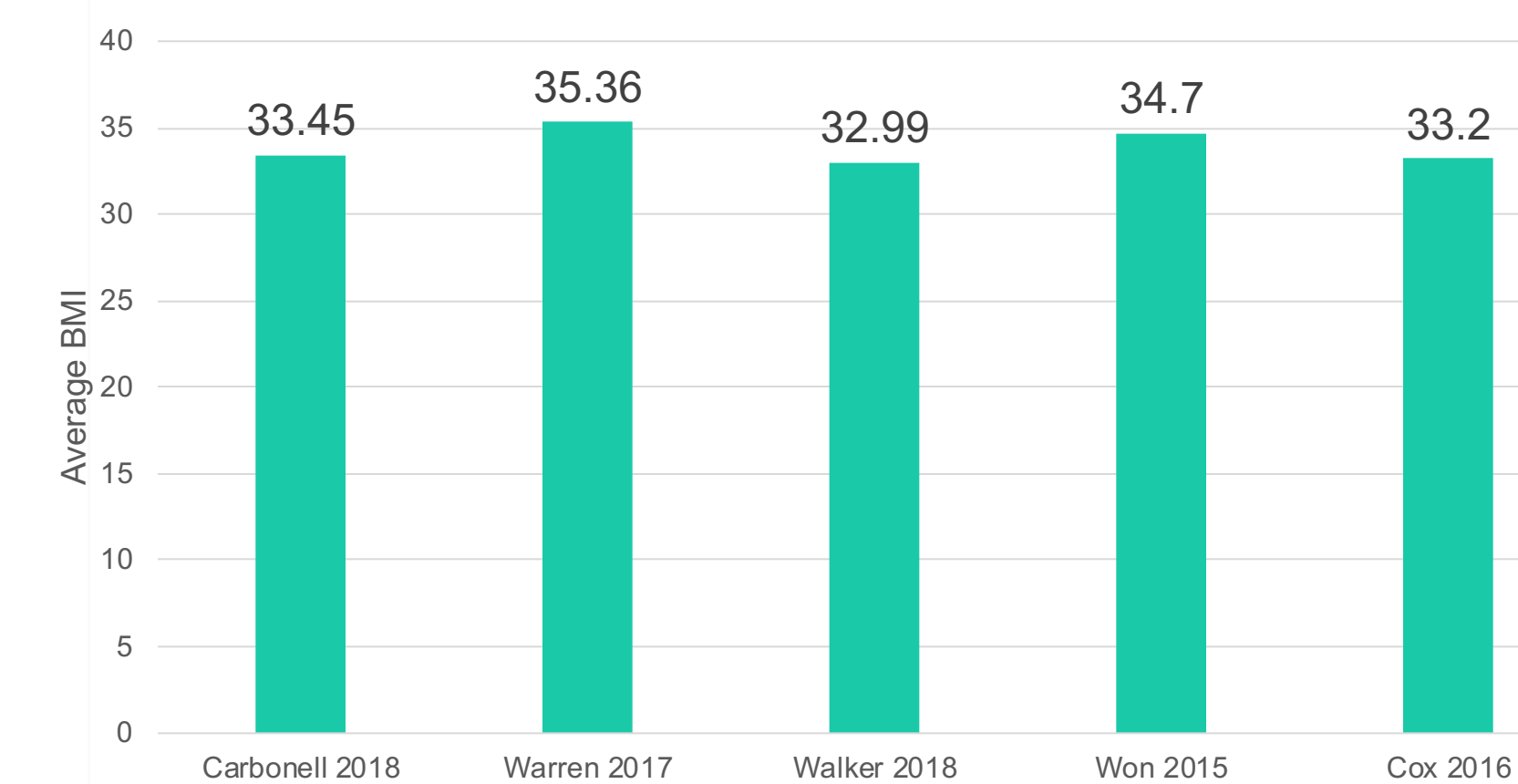
Search Strategy



RESULTS

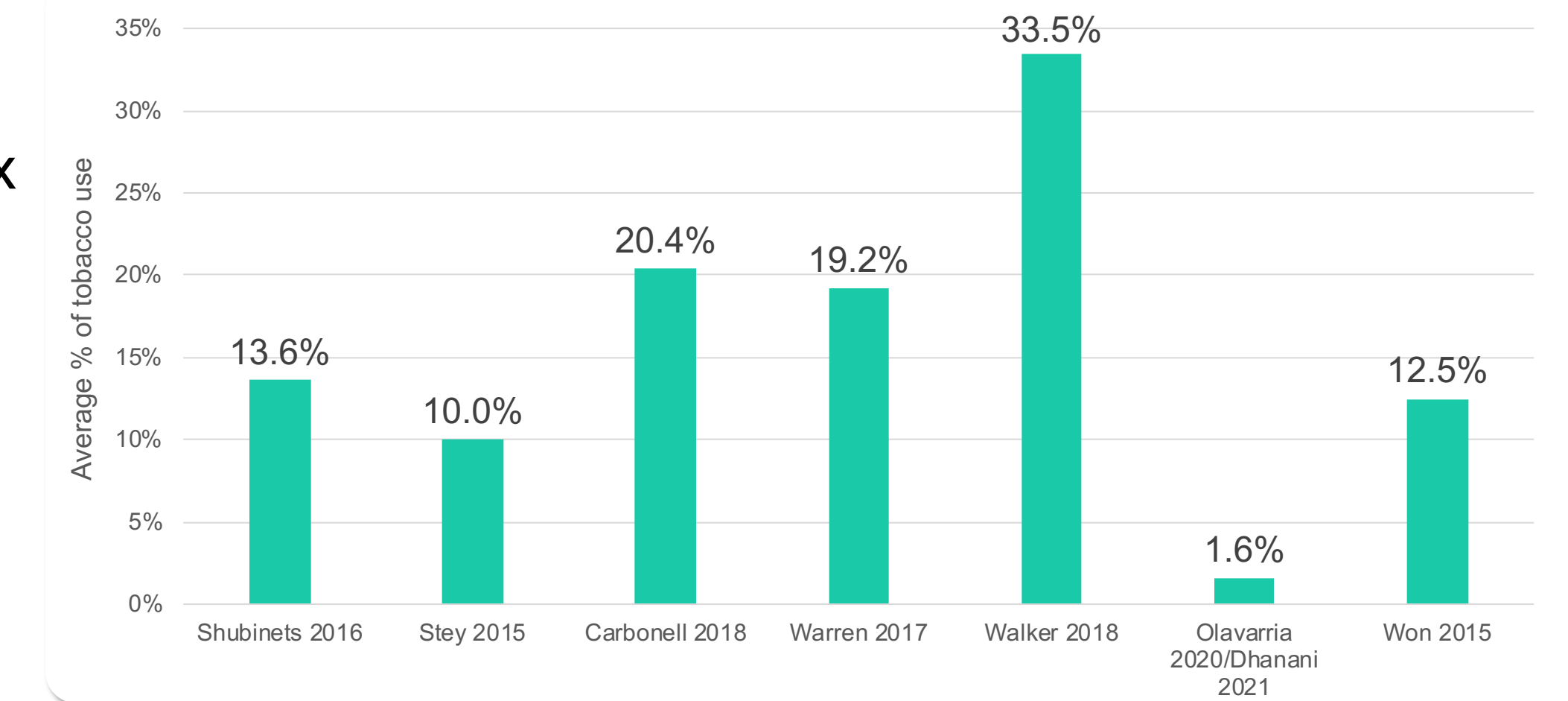
Population Characteristics

7/11 Studies: Mean BMI



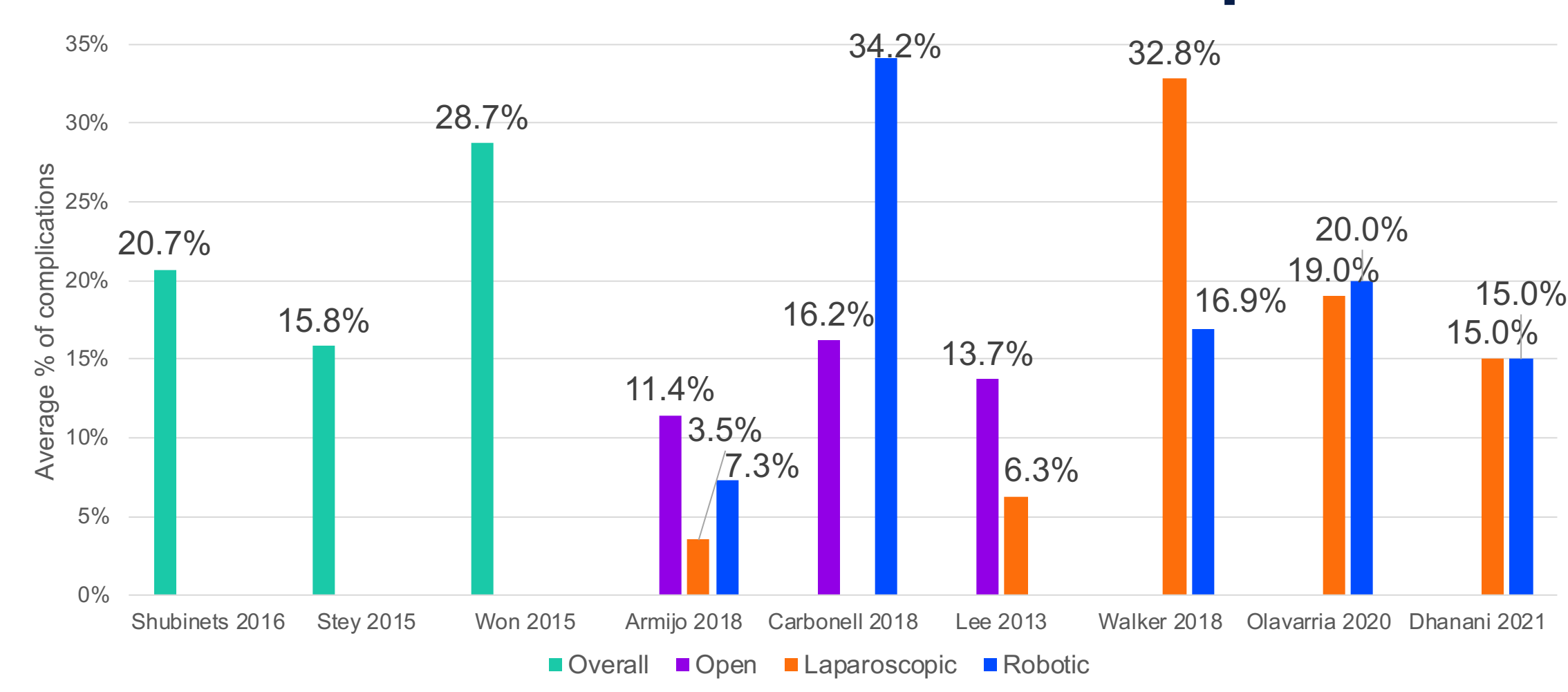
- Average BMI is obese (BMI>30)
- 4/11 studies: ASA grade is typically more complex repairs (grade 3 or 4)
- 4/11 studies: steroid use ranged from 1.8-3.9%
- 7/11 studies: tobacco use ranged from 1.6-33.5%
- 4/11 studies: COPD, 2/11 studies reported diabetes, 5/11 studies reported HTN

7/11 Studies: Tobacco Use



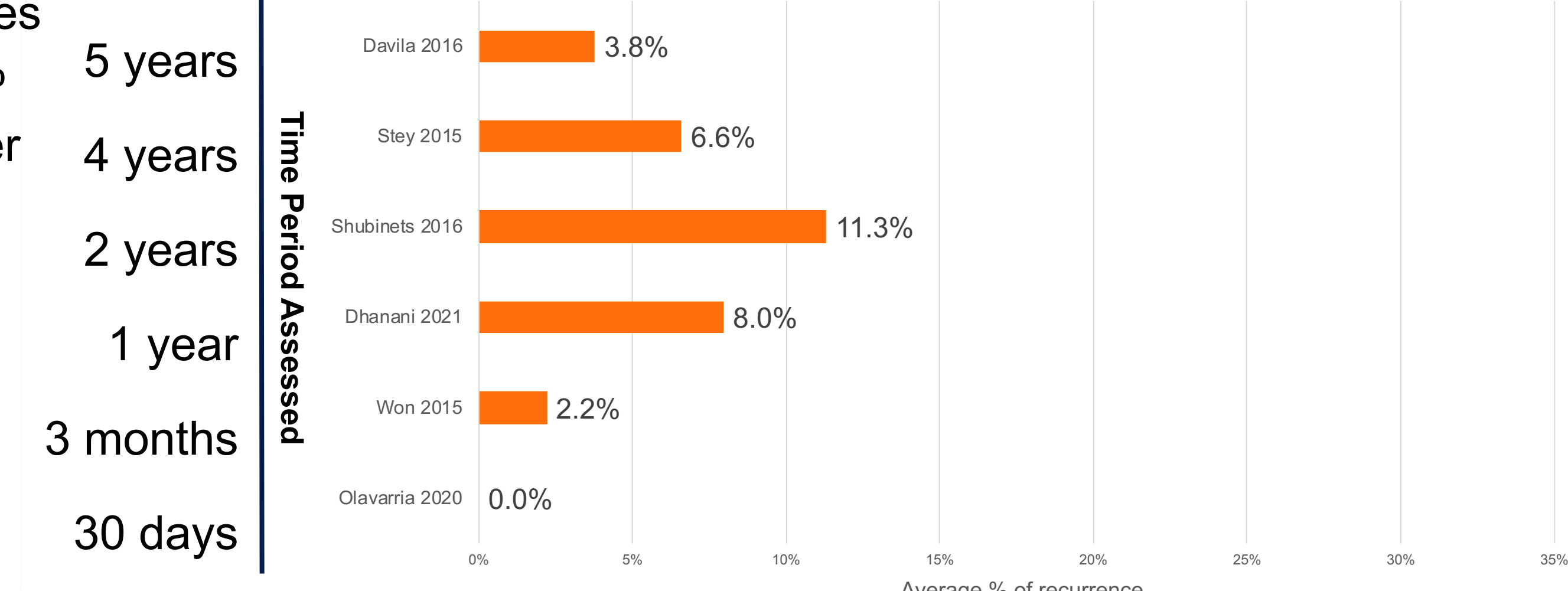
Clinical Outcomes

9/11 Studies: Total Rate of Complications



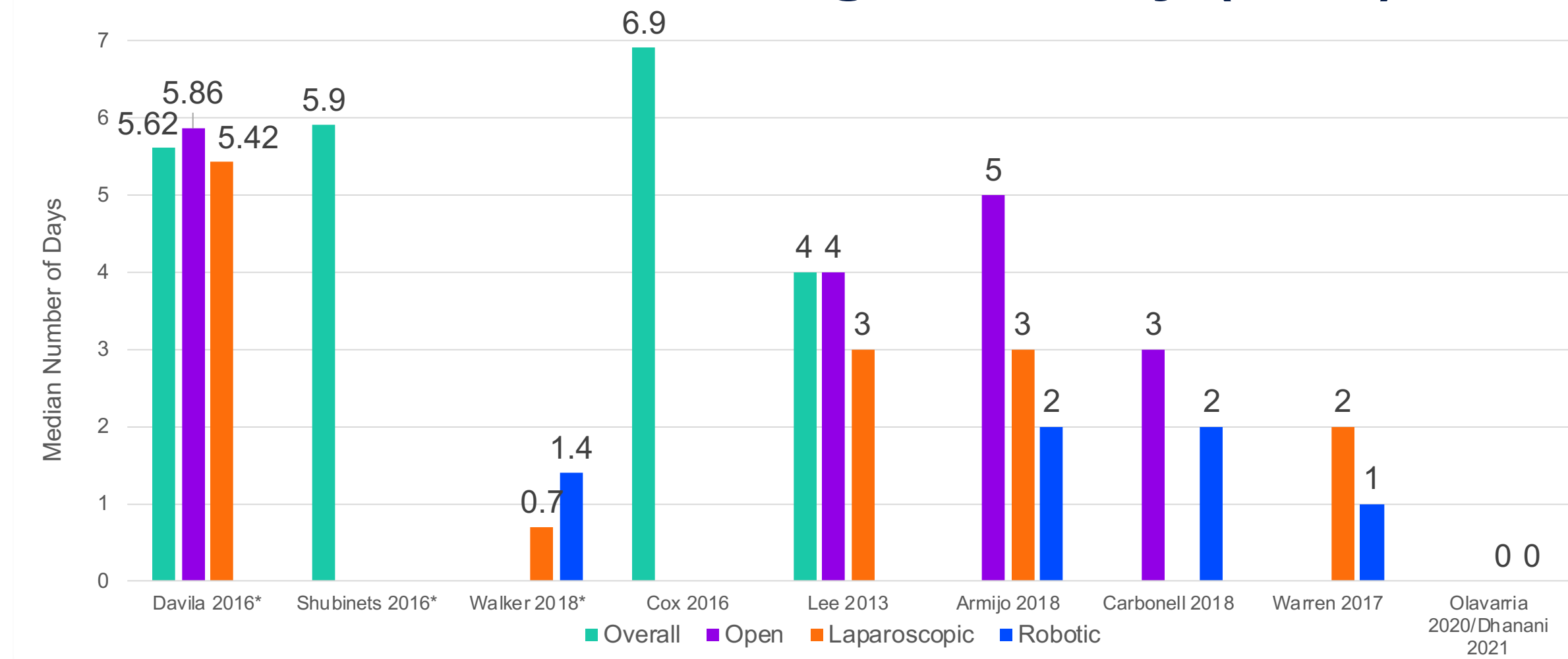
- Overall complication rates ranged from 15.8-28.7%
- Open surgery had higher complication rates than minimally invasive surgeries
- Recurrence rate ranged from 0-11.3% over a follow-up of 30 days-5 years

5/11 Studies: Recurrence Rate

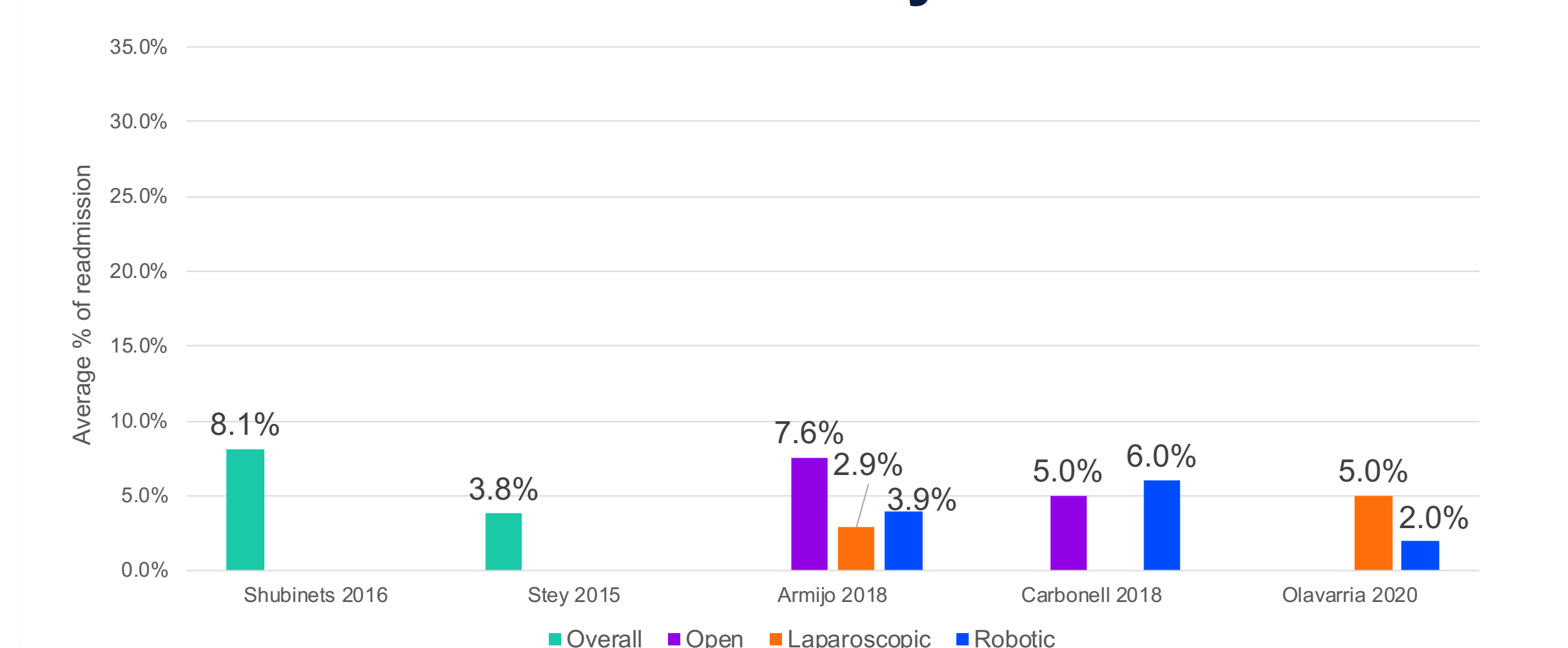


Economic Outcomes

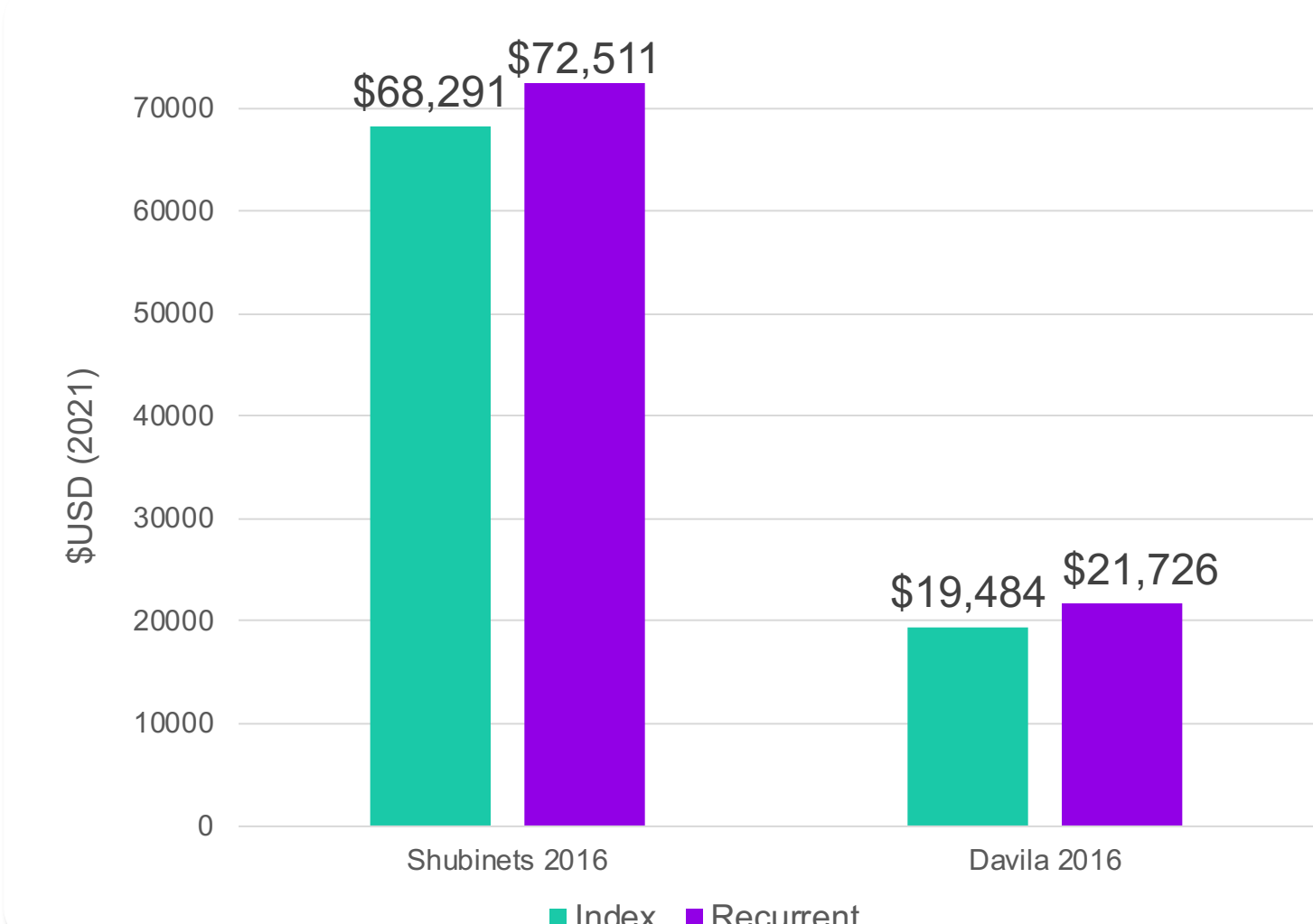
9/11 Studies: Length of Stay (LOS)



5/11 Studies: 30-Day Readmission

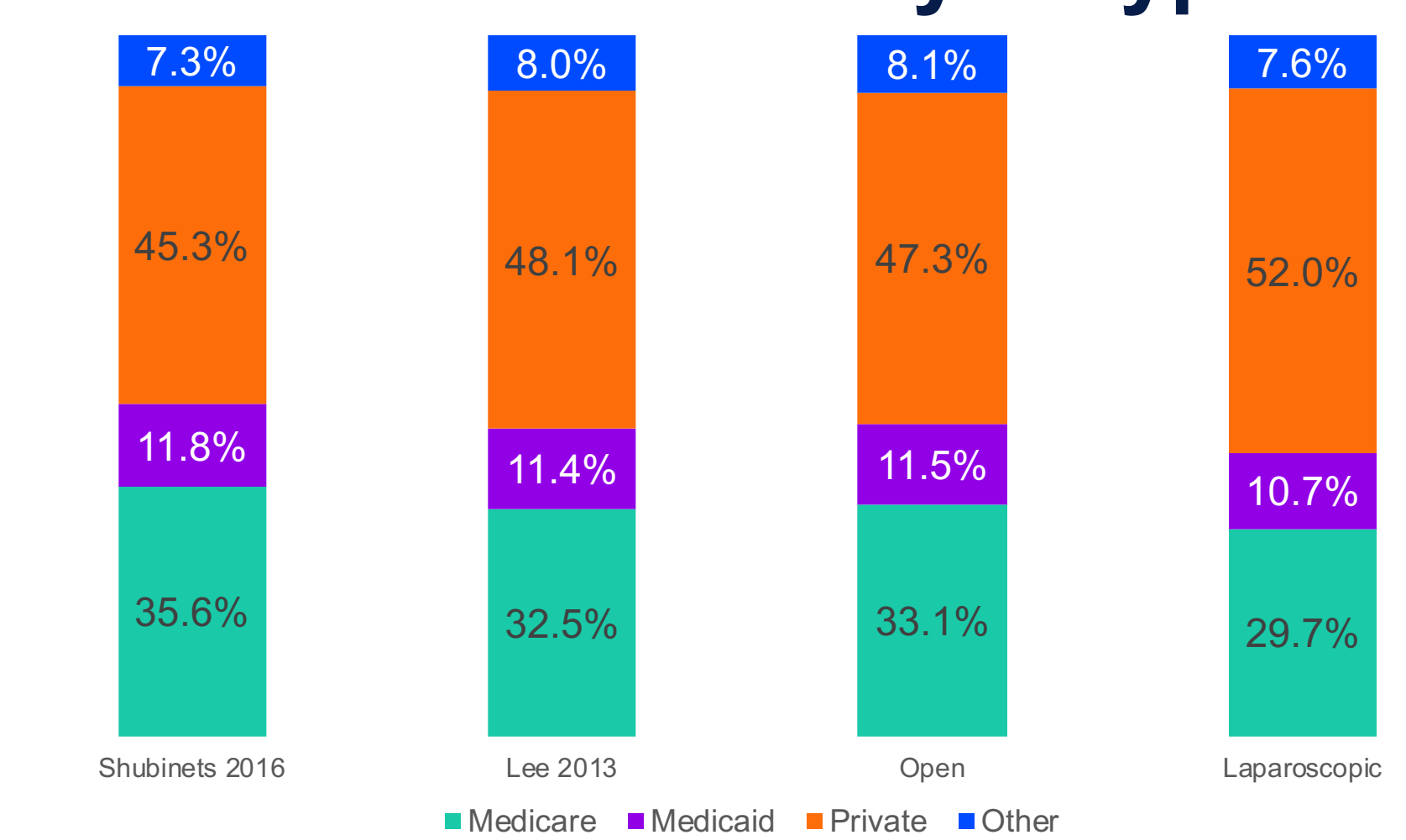


2/11 Studies: Recurrence Costs



- Recurrence costs: \$2,000-5,000 greater than index repair
- Total inpatient costs: \$24,595-49,936 in a population that was not exclusively obese
- Total inpatient costs: \$65,685- 80,063 in an obese population
- In an obese patient population: payer type remained consistent across studies
- 45.3-52% of patients had private insurance
- 29.7-35.6% of patients had Medicare

2/11 Studies: Payer Type



References

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* = mean LOS; otherwise reported as median LOS

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