

# Growing utilization of total spine magnetic resonance imaging (MRI) relative to localized spine MRI for patients presenting through emergency departments over the past decade

Katelyn E Rudisill, BS<sup>1,2</sup>, Meera M. Dhodapkar, BA<sup>1</sup>, Philip Ratnasamy, BS<sup>1</sup>, Seongho Jeong, MD<sup>1</sup>, Jonathan N. Grauer, MD<sup>1</sup>

Department of Orthopaedics and Rehabilitation, Yale University School of Medicine<sup>1</sup>, Lewis Katz School of Medicine at Temple University<sup>2</sup>

Disclosures: Jonathan N Grauer (Editor-in-Chief of North American Spine Society Journal, North American Spine Society Board).

## Introduction

- Spinal magnetic resonance imaging (MRI) is increasingly considered for patients who present to the emergency department (ED)
- Spine MRI is useful for evaluation of vertebrae and spinal cord pathologies

## Methods

- Data from the M151Ortho PearlDiver dataset to identify total spine MRI patients and localized spine MRI patients by CPT codes for spine imaging: CPT-72141, CPT-72156, CPT-72148, CPT-72149, CPT-72158, CPT-72146, CPT-72147, and CPT-72157
- Patients included had to have had a spine MRI within 7 days of presenting to the ED
- Multivariate logistic regression used to determine predictors of total spine MRI use for patients who presented to the ED
- Rescan rates for patients who received a total spine MRI or a localized spine MRI within 14 days of their original spine MRI were assessed

## Results

- Of 275,999 spine MRIs performed for patients who presented to the ED, 18,632 received a total spine MRI prior (figure 1)
- Total spine MRIs were traced from 2010-2021 and compared to localized spine MRIs which showed an increase in total spine MRIs from 4.85% in 2010 to 12.38% in 2021 (figure 2)
- Several independent predictors of total spine MRI for patients who presented to the ED were defined (Figure 3)
- Rescan rates for total spine MRI patients and localized spine MRI patients were 7.28% and 5.46%, respectively

Breakdown of total spine MRI of patients admitted to the ED

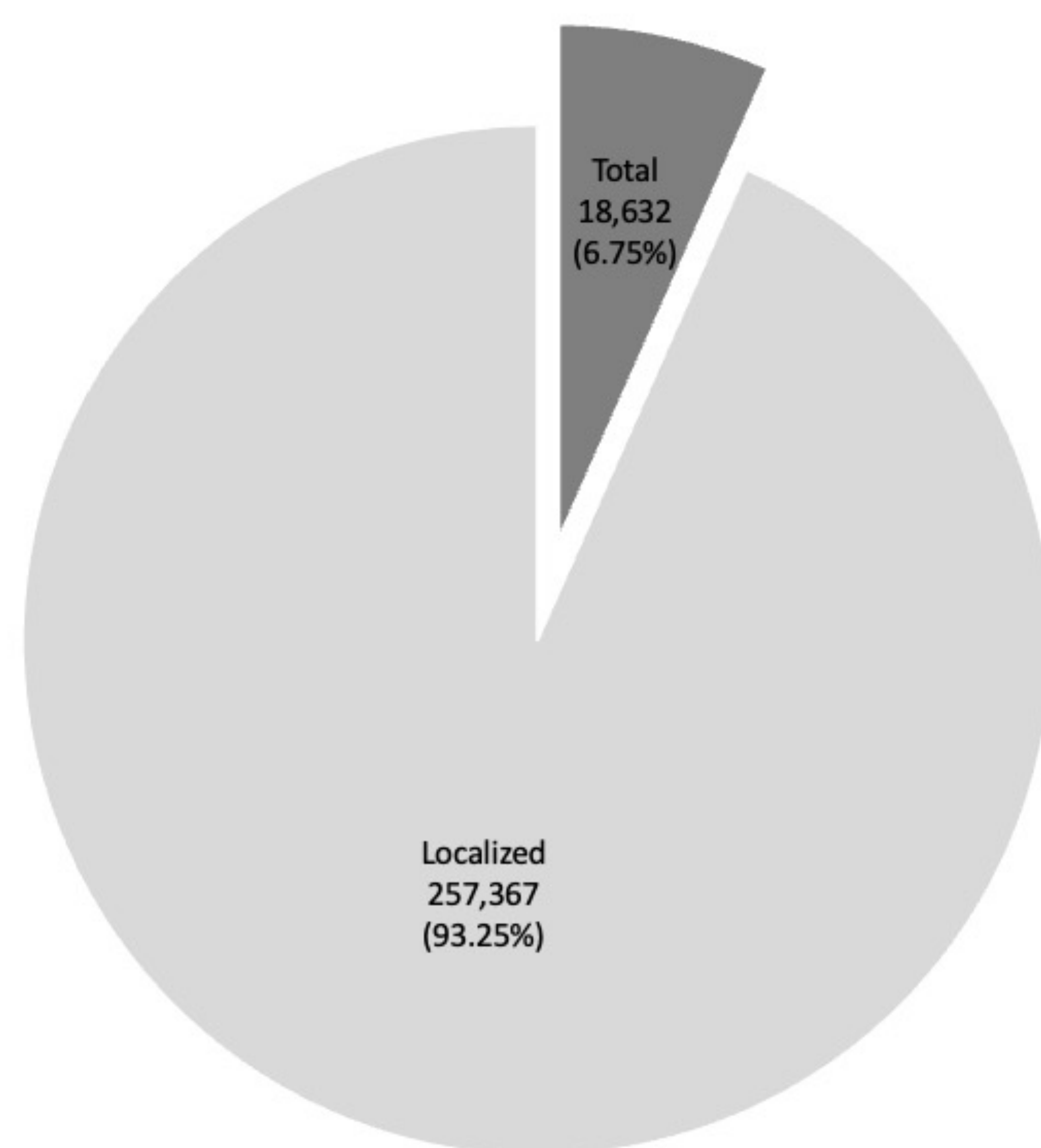


Figure 1. Study cohort breakdown of patients who presented to the ED who had a total spine or localized spine MRI

Proportional use of total and localized spine MRI for patients admitted to the ED who received spinal imaging from 2010-2021

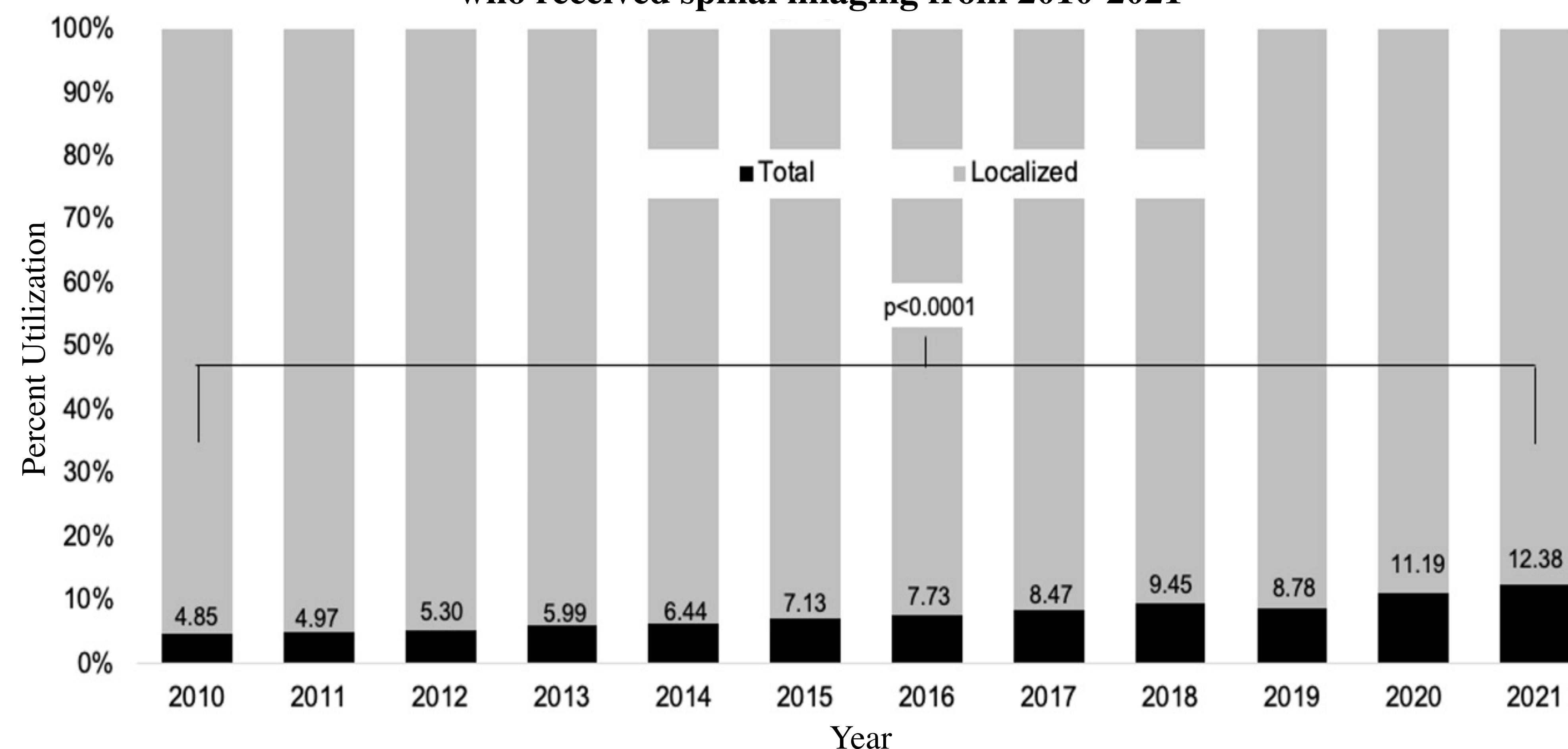


Figure 2. Study The percent of patients who received a total spine MRI traced over a decade. Percent of patients receiving a total spine MRI are compared to those who received a localized spine MRI.

Predictive Factors for receiving a total spine MRI for patients who presented to the ED

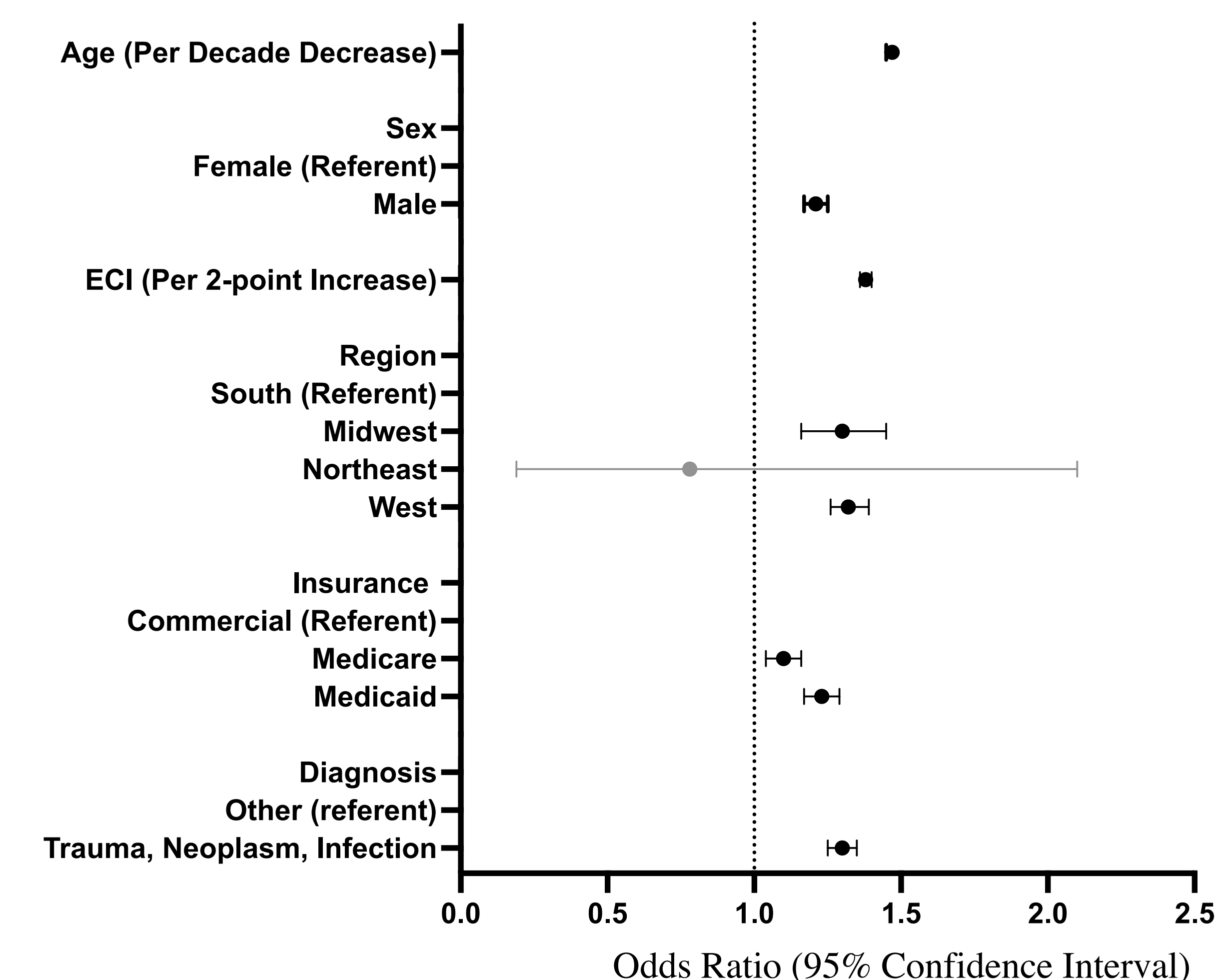


Figure 3. Multivariate logistic regression analysis for predictive factors for having a total spine MRI for patients presenting to the ED

## Conclusions

- Of the 275,999 spine MRI patients, 18,632 (6.75%) had a total spine MRI from 2010-2021
- Total spine MRIs were ordered at an increased rate from 4.85% to 12.38% from 2010-2021
- Multivariate analysis identified predictive factors associated with total spine MRI
- Of patients who had spine MRIs, total spine MRI patients were more likely to have a repeat spine MRI within 14 days of their original scan