

# Adherence of Kaiser Permanente Southern California to Choosing Wisely® Initiative in Radiographic Imaging of Low Risk Prostate Cancer

Kaiser  
Permanente  
Research

Daniel Artenstein, Tyler Kern, Aaron Krug, Joanie J. Chung\*, Stephen J. Jacobsen\*, Gary W. Chien  
Department of Urology, Kaiser Permanente Los Angeles Medical Center  
\*Department of Research and Evaluation, Kaiser Permanente Southern California

## Introduction

Choosing Wisely® is an initiative to avoid unnecessary medical workup and expenditure. In Urology, Statements 1 and 7 (published 2013 and 2015 respectively) state bone scans and abdominal CT scans are unnecessary in low risk prostate cancer (PCa).<sup>1</sup> A SEER database study shows inappropriate imaging is ordered in 44% of patients with PCa.<sup>2</sup> We evaluate the adherence of Kaiser Permanente Southern California (KPSC) physicians to these recommendations and whether the Choosing Wisely® changed the practice at KPSC.

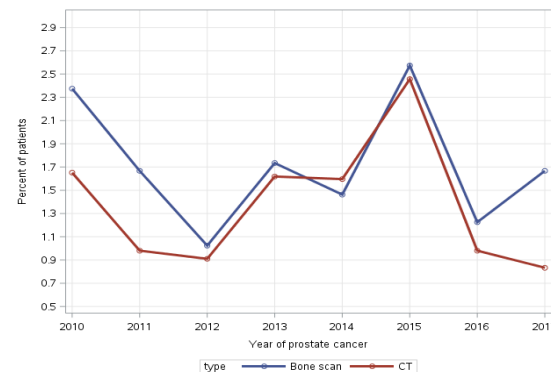
## Methods

We performed a retrospective study on patients diagnosed with low risk PCa (Gleason score < 7, PSA < 10) between January, 1 2010-December 31, 2017 at KPSC. All demographics and imaging data were obtained. Patients with symptoms concerning for metastatic disease or with other malignancies were excluded by chart review. Statistical analysis was employed to compare the use of bone and CT scans in this population before and after the Choosing Wisely® guidelines were published.

## Results

Of a total of 6,996 patients who met our inclusion criteria, 1.4% and 1.7% of patients underwent a bone and CT scan, respectively. The percentage of these imaging studies with respect to year is shown in Figure 1.

A Cochran-Armitage test demonstrated that for both imaging modalities, there was a trend towards decreased imaging rates after the recommendations were published ( $p < 0.0001$ ).



**Figure 1:** Trend of percentage of patients that underwent bone scan or CT scan

Logistic regression analysis revealed that for every point increase in PSA, there was a 9% increase in odds of ordering both a bone scan and CT scan. When compared to White patients, the odds of having a bone scan and CT scan were 53% and 40% lower for Asian patients, 65% and 63% lower for Black patients, and 70% and 63% lower for Hispanic patients, respectively.

## Conclusion

Over the study period, KPSC had lower rates of inappropriate imaging for low risk PCa compared to published community rates. The publication of the Choosing Wisely® statements was associated with a decrease in trend of inappropriate imaging in our study population. Higher PSA levels and White ethnicity were predictors for ordering inappropriate imaging.

## References

1. Choosing Wisely. An initiative of the ABIM Foundation. <http://www.choosingwisely.org/societies/american-urologicalassociation/>
2. Makarov DV, Soulos PR, Gold HT, et al. Regional-Level Correlations in Inappropriate Imaging Rates for Prostate and Breast Cancers: Potential Implications for the Choosing Wisely Campaign. *JAMA Oncol.* 2015;1(2):185-94