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# Disparities in access to guideline concordant minimally invasive surgery for stage I-III endometrial cancer

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## Introduction

Gynecologic cancers cause significant morbidity and mortality in the United States. Endometrial cancer is the most common gynecologic malignancy, estimated to affect 66,570 women in the United States in 2021[1]. The incidence of endometrial cancer is increasing, with lowest rates of increase in White women[2]. Additionally, mortality rates have been rising by an average of 1.7% each year from 2010 to 2019 (Cancer Stat Facts: Uterine Cancer).

Disparities in mortality have been well established. Although incidence is greatest in White women among all racial groups, Black women continue to die at almost twice the rate of White women and the highest rate among all groups (Cancer Stat Facts: Uterine Cancer). The American College of Surgeons' Commission on Cancer (CoC) has established treatment guidelines that have been shown to improve patient outcomes and overall survival in many cancer types [3,4,5]. CoC guidelines have largely been accepted as standard of care, but adherence is subject to disparities and remains low for several patient groups [5-10].

Many prior studies have examined differences in adherence to adjuvant therapy across racial/ethnic groups and insurance status. However, adherence to guidelines for minimally invasive surgery (MIS) and the impact of adherence on survival have been less well investigated. Therefore, the aims of this study were to 1) evaluate differences in adherence to CoC guidelines for MIS among women with endometrial carcinomas and 2) quantify the impact of adherence to CoC guidelines on survival across racial/ethnic groups and insurance status.

## Methods

Patients who were diagnosed with stage I-III endometrial cancer from 2010-2018 were identified from the National Cancer Database. Patient demographics were collected, including race, insurance status, Charlson-Deyo score, age at diagnosis, income, clinical stage, and distance from treatment facility. Differences in patient characteristics and perioperative outcomes for patients who received guideline concordant MIS versus those who did not were examined. Odds of receiving MIS were determined while controlling for sociodemographic, clinical, and hospital characteristics. Additionally, odds ratios were adjusted with propensity score matching and for clustering at facilities. Clinical staging was used in our models because this was the information that would have been available to the surgical team when deciding on surgical approach.

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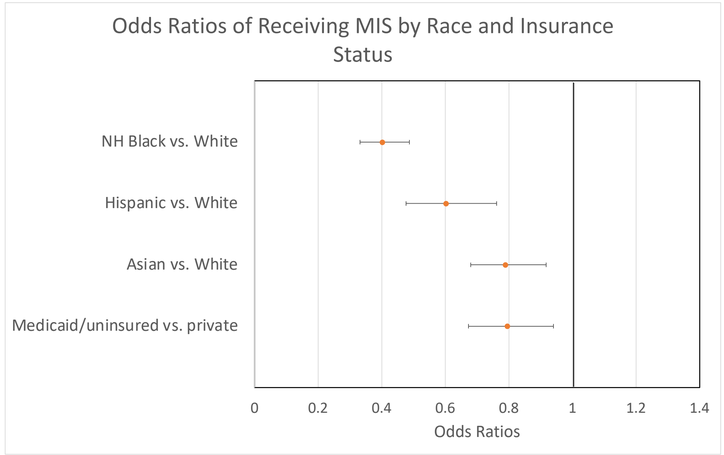
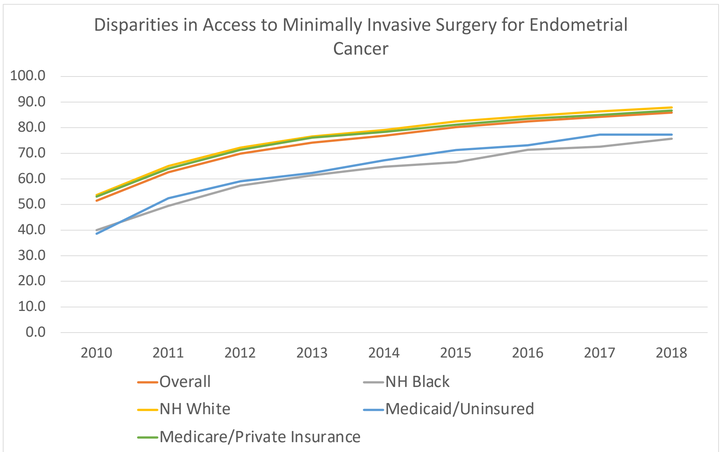
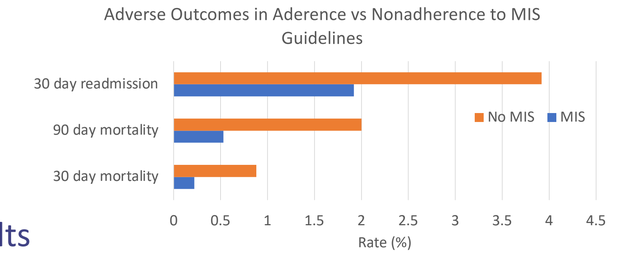
## Figure 1




## Figure 2




## Figure 3




## Results

217,760 surgically treated patients with stage I-III endometrial cancer were included. Overall, 9.7% (n=21,040) were non-Hispanic Black, 6.3% (n=13,726) were Hispanic, and 9.4% (n=20,520) had Medicaid or no insurance. On multivariable analysis, non-Hispanic Black race (OR 0.40, 95% CI 0.33-0.49) and Hispanic ethnicity (OR 0.60, 95% CI 0.48-0.76) were associated with lower odds of receiving guideline concordant MIS (Figure 1). Despite improvements in guideline concordance over the study period, disparities were notably persistent (Figure 2). Additionally, those with either Medicaid or no medical insurance (OR 0.50, 95% CI 0.43-0.58) had lower odds of receiving MIS. Figure 3 shows that nonadherence to MIS guidelines was associated with worse 30-day (0.88% vs 0.22% MIS) survival, worse 90-day (2.0% vs 0.53% MIS) survival, and worse 30-day unplanned readmissions (3.92% vs 1.92% MIS; all p<0.001).

## Conclusions

There are racial-ethnic and insurance status disparities in Commission on Cancer MIS guideline concordance for endometrial cancer. MIS is associated with improved short-term outcomes.

## References

1. Siegel RL, Miller KD, Fuchs HE, Jemal A. Cancer Statistics, 2021. *CA Cancer J Clin.* 2021;71(1):7-33.
2. Henley SJ, Miller JW, Dowling NF, Benard VB, Richardson LC. Uterine Cancer Incidence and Mortality - United States, 1999-2016. *MMWR Morb Mortal Wkly Rep.* 2018;67(48):1333-1338.
3. Bristow RE, Chang J, Ziogas A, Campos B, Chavez LR, Anton-Culver H. Impact of National Cancer Institute Comprehensive Cancer Centers on ovarian cancer treatment and survival. *J Am Coll Surg.* 2015;220(5):940-950.
4. Boland GM, Chang GJ, Haynes AB, et al. Association between adherence to National Comprehensive Cancer Network treatment guidelines and improved survival in patients with colon cancer. *Cancer.* 2013;119(8):1593-1601.
5. Kaspers M, Llamocca E, Quick A, Dholakia J, Salani R, Felix AS. Black and Hispanic women are less likely than white women to receive guideline-concordant endometrial cancer treatment. *Am J Obstet Gynecol.* 2020;223(3):398.e391-398.e318.
6. Rodriguez VE, LeBrón AMW, Chang J, Bristow RE. Racial-Ethnic and Socioeconomic Disparities in Guideline-Adherent Treatment for Endometrial Cancer. *Obstet Gynecol.* 2021;138(1):21-31.
7. Rodriguez VE, LeBrón AMW, Chang J, Bristow RE. Guideline-adherent treatment, sociodemographic disparities, and cause-specific survival for endometrial carcinomas. *Cancer.* 2021;127(14):2423-2431.
8. Rauh-Hain JA, Melamed A, Schaps D, et al. Racial and ethnic disparities over time in the treatment and mortality of women with gynecological malignancies. *Gynecol Oncol.* 2018;149(1):4-11.
9. Rauh-Hain JA, Buskwofie A, Clemmer J, Boruta DM, Schorge JO, Del Carmen MG. Racial disparities in treatment of high-grade endometrial cancer in the Medicare population. *Obstet Gynecol.* 2015;125(4):843-851.
10. Pfaendler KS, Chang J, Ziogas A, Bristow RE, Penner KR. Disparities in Adherence to National Comprehensive Cancer Network Treatment Guidelines and Survival for Stage IB-IIA Cervical Cancer in California. *Obstet Gynecol.* 2018;131(5):899-908.