

Prevalence of Cardiovascular–Kidney–Metabolic Syndrome Among Older Women with Breast Cancer in the 2011–2021 SEER–Medicare Data

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BACKGROUND

Disease

Cardiovascular–Kidney–Metabolic (CKM) syndrome involves interrelated cardiovascular, kidney, and metabolic disorders, contributing substantially to morbidity and mortality.

Population

Older women with breast cancer face elevated cardiometabolic risk due to aging, shared risk factors, and treatment-related toxicities.

Evidence Gap

- Most studies mainly focused on individual outcomes, with limited attention to the integrated CKM framework.
- The epidemiology and clinical characteristics of CKM syndrome among older women with breast cancer remain unclear.

OBJECTIVES

- To assess the prevalence and stage distribution of CKM syndrome among older women with breast cancer

METHODS

Data Source

- Surveillance, Epidemiology, and End Results (SEER)–Medicare database (2010–2021)

Study Population

- Women aged ≥ 66 years with incident breast cancer (2011–2021)

Outcome Variable

- CKM syndrome (stages 1–4b)
- Identified using diagnosis codes within one year before cancer diagnosis and classified severity by a claims-based staging algorithm

Baseline Characteristics

- Sociodemographic factors (*age, race/ethnicity, marital status, and geographic region*)
- Cancer-related characteristics (*cancer stage, tumor size, and cancer subtype*)
- Cancer treatment (*surgery, radiation, and chemotherapy*)
- Assessed at cancer diagnosis and in the prior year

Statistical Analysis

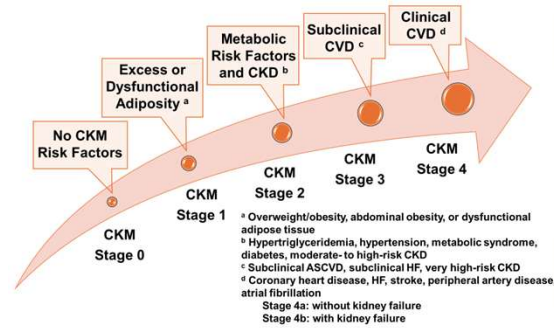
- CKM stage distributions across calendar years compared using chi-square tests

Subgroup Analyses

- Stage-specific prevalence was stratified by age group, race/ethnicity, cancer stage, and tumor size.

RESULTS

Supplementary Figure. Stage of CKM Syndrome



Patient Characteristics

- Among 271,421 older women with breast cancer, **90.2%** had pre-existing CKM syndrome
- Women with advanced CKM (stages 3–4) were
 - Older at cancer diagnosis
 - More likely to be non-Hispanic Black women
 - Less likely to receive surgery, radiation, or chemotherapy

Figure 1. Patient Selection

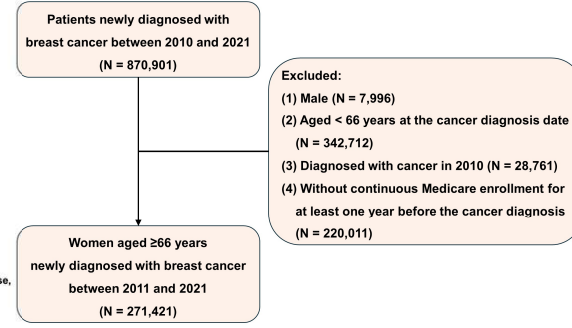


Figure 2. CKM Prevalence Across Calendar Years

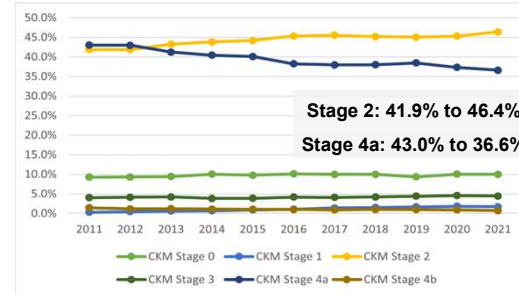
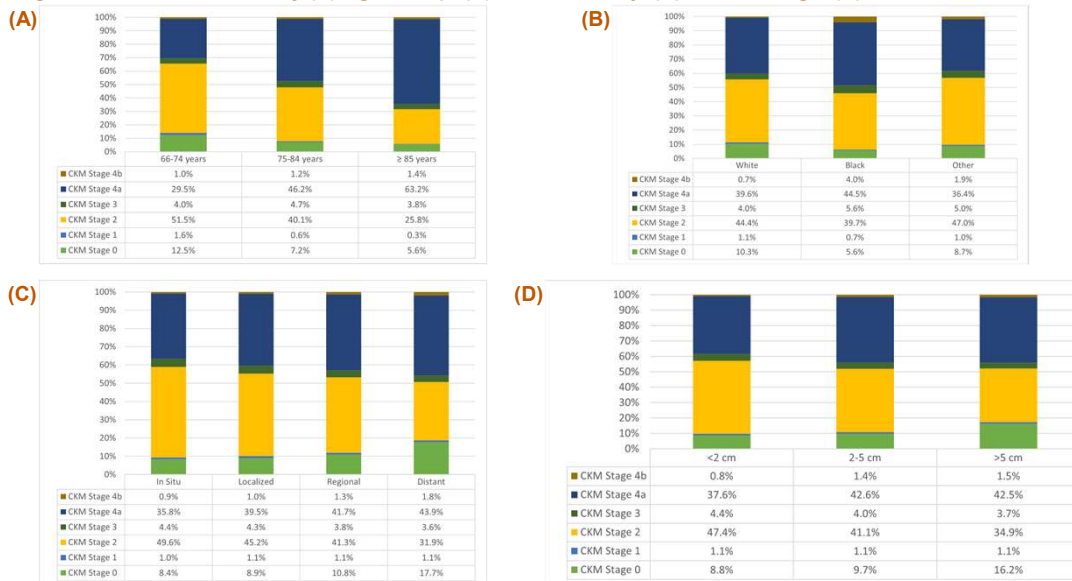


Figure 3. CKM Prevalence by (A) Age Group, (B) Race/Ethnicity, (C) Cancer Stage, (D) Tumor Size



CONCLUSIONS

Strengths

- This study used a large, nationally representative SEER–Medicare database, enhancing generalizability to older U.S. women with breast cancer.
- The long study period enabled evaluation of temporal trends in CKM prevalence and stage distribution.
- Detailed subgroup analyses provided insight into disparities by age, race/ethnicity, and cancer-related characteristics.

Limitations

- Clinical measurements (e.g., laboratory values) were unavailable.
- CKM syndrome was identified using administrative claims data, which may be subject to misclassification, although prevalence estimates were comparable to prior U.S. population-based studies.
- The study population was restricted to women aged ≥ 66 years with continuous Medicare coverage, limiting generalizability to younger patients or those with other insurance.

Implications

- The high prevalence of CKM syndrome highlights the importance of routine cardiometabolic risk assessment in older women with breast cancer.
- Stage-specific disparities suggest the need for tailored surveillance and management strategies for high-risk subgroups, particularly older women, non-Hispanic Black women, and those with advanced-stage cancer.
- These findings support the incorporation of CKM burden into clinical decision-making and survivorship care planning.

Conclusion

- Pre-existing CKM syndrome is highly prevalent among older women with breast cancer and shows substantial heterogeneity across demographic and clinical subgroups.
- Temporal shifts in CKM stage distribution indicate evolving cardiometabolic risk patterns.
- Recognizing and addressing CKM burden may enhance personalized risk stratification and multidisciplinary care.

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DISCLOSURE

All authors declare that they have no relevant or material financial interests that relate to the research described in this poster.