Assessing Secular Trends in Cancer Stage at Initial Diagnosis in the United States Community Oncology Setting from 2015 to 2023

EPH207

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Background and Objectives

- Early diagnosis has been linked to better clinical outcomes and lower healthcare costs in breast cancer (BC) and colorectal cancer (CRC).
- To allow diagnosis of earlier-stage disease, the American Cancer Society recommends regular population-level screenings for BC and CRC, regardless of risk status.
- However, clinical practice guidelines and healthcare utilization have seen a shift over the recent decade, with the COVID-19 pandemic bringing further changes.
  - BC guidelines were revised in 2017 to include mammograms for younger women.
  - CRC guidelines reduced the age threshold to 45 years in 2021.
- In this context, we characterized the distribution of cancer stage at diagnosis over the last decade in the United States (US) community oncology setting.

Methodology

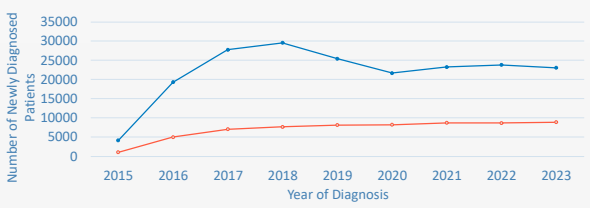
- **Study Design**: Retrospective observational cohort study
- **Population**: Adult patients diagnosed with BC or CRC within The US Oncology Network between January 2015 and December 2023
- **Sources**: Demographics and medical history data were sourced from **structured data fields in iKnowMed™ (iKM)**, an oncology-specific electronic health record system that captures outpatient practice encounter histories for nearly 40% of US community oncology practices. Cancer stage at initial diagnosis was obtained from the **Clear Value Plus (CVP) platform**, a clinical decision support tool embedded within the iKM system since 2014 (Note: *All US Oncology Network practices that started using CVP prior to 1/1/2019 were included)*
- **Statistical Methods**: Patient characteristics and diagnosis stage were descriptively evaluated overall and annually.

Results

Table 1. Patient Baseline Characteristics

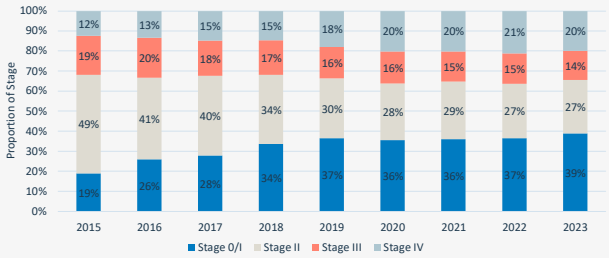
Variable	Overall	Breast Cancer	Colorectal Cancer
Number of Unique Patients	270,581 (100%)	205,553 (75.97%)	65,028 (24.03%)
Mean (SD) Age at Diagnosis (Years)	60.71 (13.31)	59.95 (13.42)	63.11 (12.63)
Race, N (%)			
Black/African American	20,890 (7.72%)	16,236 (7.90%)	4,654 (7.16%)
Caucasian/White	189,519 (70.04%)	144,164 (70.13%)	45,355 (69.75%)
Asian	9,660 (3.57%)	7,540 (3.67%)	2,120 (3.26%)
Other	10,322 (3.81%)	7,691 (3.74%)	2,631 (4.05%)
Not Documented	40,190 (14.85%)	29,922 (14.56%)	10,268 (15.79%)
Sex, N (%)			
Female	232,040 (85.76%)	204,041 (99.26%)	27,999 (43.06%)
Male	38,516 (14.23%)	1,496 (0.73%)	37,020 (56.93%)
Not Documented	25 (0.01%)	16 (0.01%)	<10

Figure 1. Change in New Breast Cancer and Colorectal Cancer Diagnoses Over Time



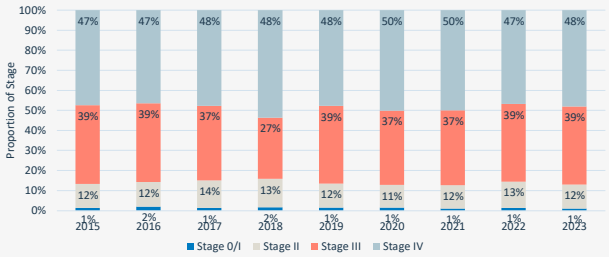
Note: Excludes 7,727 BC and 1,649 CRC patients without a documented stage. Counts are based on patients at practices that onboarded the CVP technology over time.

Figure 2. Breast Cancer Diagnosis Stage Proportions Over Time



Note: Excludes 7,727 BC patients without a documented stage.

Figure 3. Colorectal Cancer Diagnosis Stage Proportions Over Time



Note: Excludes 1,649 CRC patients without a documented stage.

- Over the study period, the proportion of patients diagnosed with advanced disease (Stage IV) increased from 12.0% to 20.0% for BC and marginally from 47.4% to 48.1% for CRC.
- Across the study period, for BC the proportion of early-stage disease (Stage 0/I) also increased over time, from 19.0% to 38.9%. The proportion of early-stage diagnoses for CRC remained constant around 1%.
- From 2019 to 2020, there was an increase of >2 percentage points in the proportion of Stage IV disease for both cancers. For CRC there was also a large decrease from 2021 to 2022 (>3 percentage points), which was not observed for BC.

Conclusions

In this study of >65,000 cancer patients treated in a community oncology setting, a greater proportion of advanced stage at diagnosis was observed over the last decade, including more marked increases following the onset of the COVID19 pandemic. Trends were less dramatic for CRC compared to BC.

Results are largely consistent with secular trends in national cancer registries. Discrepancies likely reflect differences in referral patterns and other practice aspects specific to community settings.

Large scale analyses of the distribution of stage at diagnosis over time can provide key insights for health systems and networks regarding changes in resources needed to meet patient and practice needs. Findings support the need for education when screening guidelines change, to ensure rapid uptake.

Limitations

- The analysis was descriptive in nature, without adjustment for additional patient or practice characteristics that might impact utilization, referral practices, diagnostic or catchment population changes over time.
- Fluctuations in overall patient counts may be driven by data source/provenance factors rather than population-level dynamics, such as implementation in use of the CVP technology or The US Oncology Network scope over time.
- This study focused only on two of the most common cancers with established population screening guidelines. Other cancer diagnoses without standardized screening practices may display different patterns.