Association of Census-Tract Poverty Level and Early Stage Cancer Diagnosis in Wisconsin, 2012-2016

Data Bulletin from the Wisconsin Cancer Reporting System (WCRS)

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Introduction

Stage of disease at the time of cancer diagnosis is defined by tumor size and how far the tumor has spread throughout the body. Many cancers have survival benefits when found in the earliest stages. Understanding the relationship between poverty and early stage at diagnosis may help develop better cancer prevention strategies in Wisconsin. This bulletin uses cancer incidence data from the Wisconsin Cancer Reporting System (WCRS) and population data from the U.S. Census Bureau. Information on individual income is not reported to WCRS, so the poverty level of the census tract where cancer patients lived at time of diagnosis was used as an indicator of socioeconomic status.

Poverty

The U.S. Census Bureau estimates 12.8% of the U.S. population and 10.5% of the Wisconsin population live in poverty, based on the three-year average for 2015-2017. Although Wisconsin has a lower rate of poverty than many other states, areas with higher rates of poverty are disadvantaged in accessing cancer screening programs. Poverty rates vary greatly by county and census tract. For example, Milwaukee and Chippewa counties have poverty rates significantly higher than the state average, while poverty rates in Waukesha and Ozaukee counties are significantly lower than the state average.

Definitions

Early detection – Percentage of staged cases that diagnosed at the localized stage.

Insurance status – Information about primary payer source used as a proxy for insurance status, categorized as follows: not insured, Medicaid, Medicare, Tricare and Veterans Association, private insurance, or insurance not specified.

Poverty level – Categorized according to the proportion of residents in the census tract who were living in poverty, as follows: less than 5%, 5% to 10%, 10% to 20%, or greater than 20 percent.

Figure 1. Early Stage at Diagnosis for All Cancers by Area Poverty Level, Sex and Age, 2012-2016

Figure 1 shows that a smaller proportion of cancers were diagnosed early among Wisconsin residents living in areas of higher poverty, regardless of age or sex.
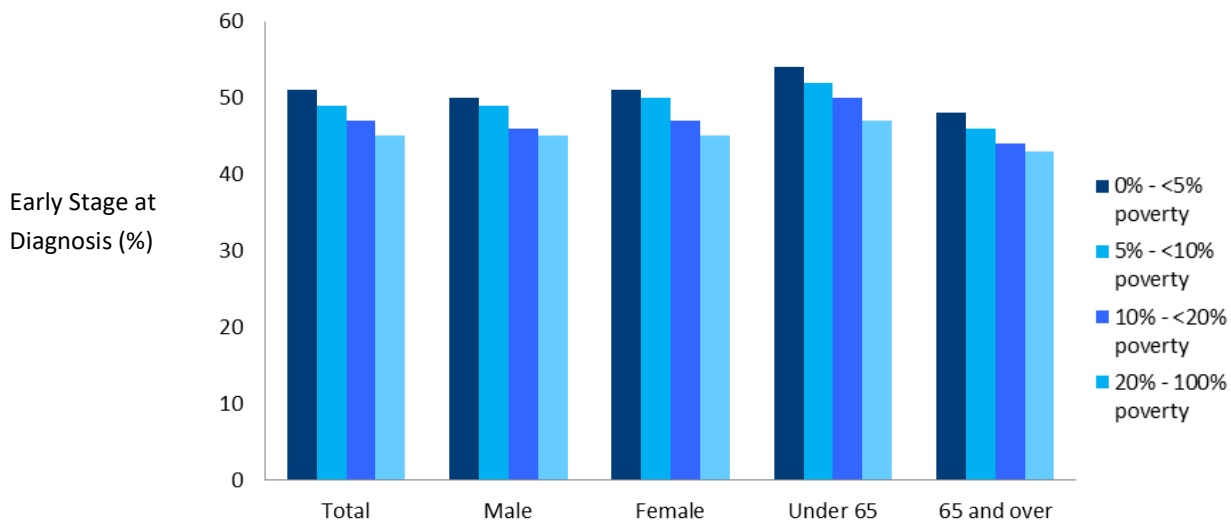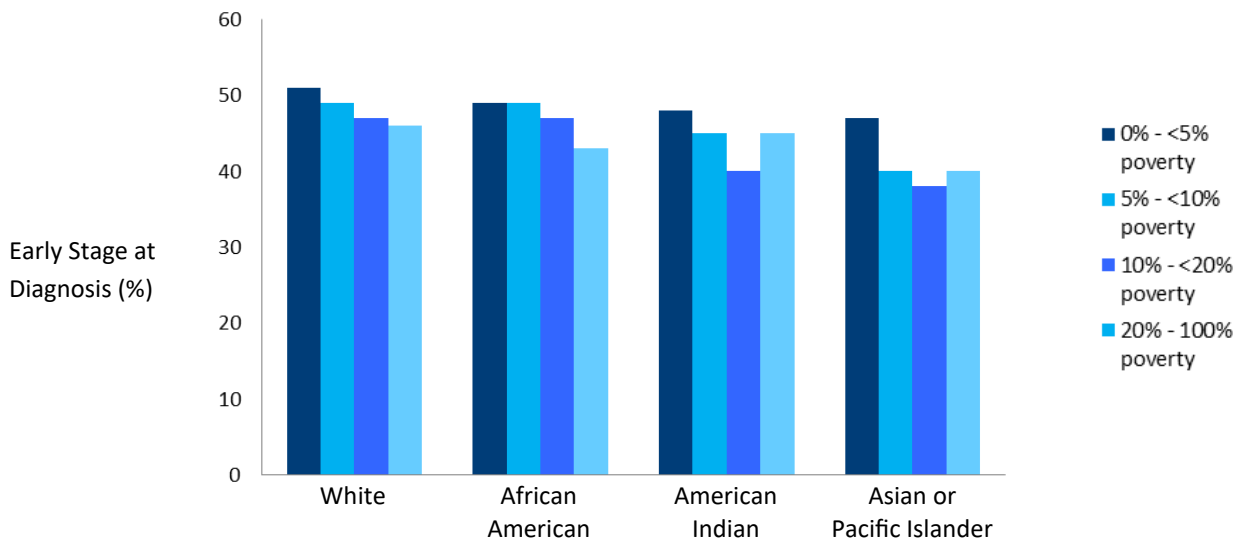

Figure 2. Early Stage at Diagnosis for All Cancers by Area Poverty Level and Race, 2012-2016

Figure 2 shows that smaller proportions of cancers were diagnosed early in areas with higher proportions of poverty across all racial groups. While proportions were similar for all groups, early diagnosis was marginally higher among the white group.

Figure 3. Early Stage at Diagnosis for All Cancers by Area Poverty Level and Insurance Status, 2012-2016

Figure 3 shows that patients with private health insurance or insurance not specified (NOS) were more likely to be diagnosed with cancer at an early stage compared to those who were uninsured or had Medicaid. Poverty level influenced the stage at diagnosis for most insurance categories.
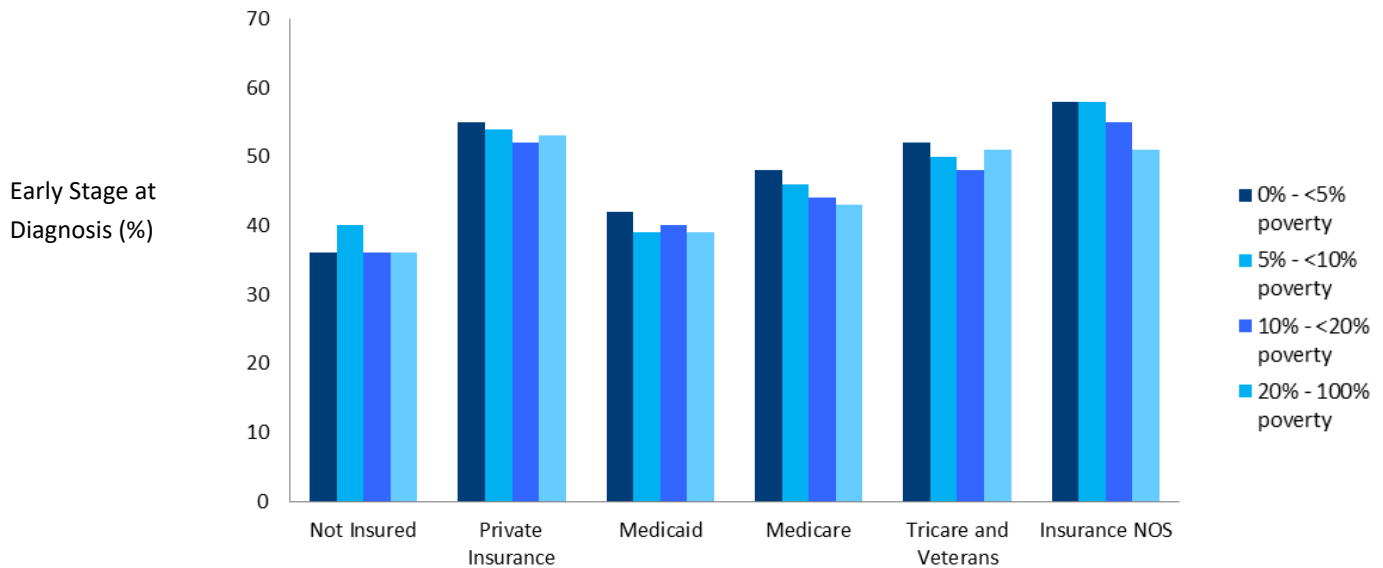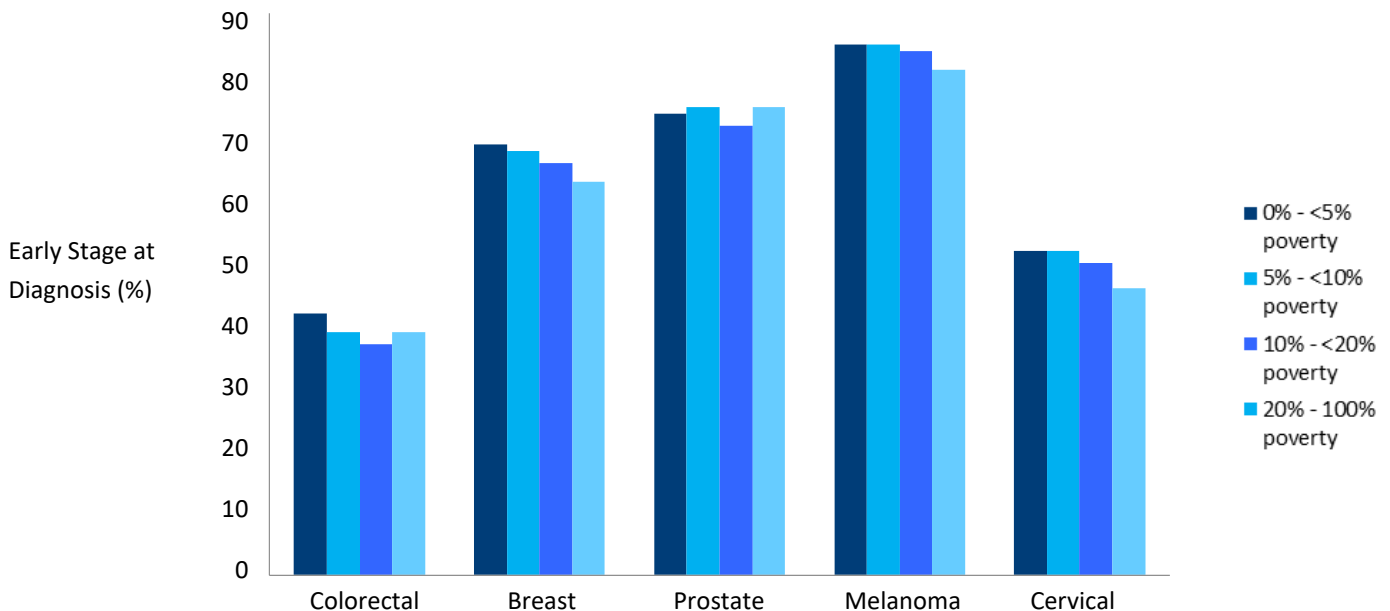

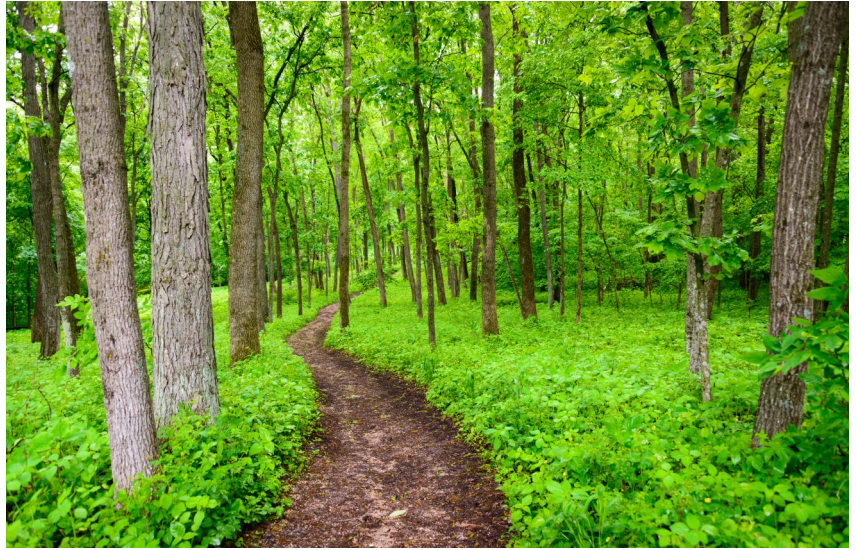## Figure 4. Early Stage at Diagnosis for Selected Cancers by Area Poverty Level, 2012-2016

Figure 4 shows that cancers detectable with standard screening tests, including breast, cervical, and colorectal cancers, were less likely to be diagnosed early among people residing in areas with higher proportions of poverty.

Conclusion

It is well documented that poverty remains a risk factor for cancer and a major contributing factor to health disparities. This analysis focused on one pivotal stage on the health care continuum, and found that those who live in poverty are more likely to be diagnosed with cancer at advanced stages. Progress in cancer control requires a more equal distribution of resources for detecting and diagnosing cancer to achieve a lower cancer burden for all Wisconsin residents.

For more information about cancer and poverty:

Boscoe, Francis P., Kevin A Henry, Recinda Sherman, et al. "The relationship between cancer incidence, stage, and poverty in the United States." Epidemiology & Biostatistics Faculty Scholarship. (2015). https://scholarsarchive.library.albany.edu/cgi/viewcontent.cgi?article=1002&context=epi_fac_scholar

What are poverty thresholds and poverty guidelines? https://www.irp.wisc.edu/resources/what-are-poverty-thresholds-and-poverty-guidelines/

Wisconsin Cancer Reporting System: https://www.dhs.wisconsin.gov/wcrs/index.htm