

# Association of Comorbid Diabetes With Clinical Outcomes and Healthcare Utilization in Colorectal Cancer Survivors

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**OBJECTIVES:** To compare clinical outcomes and healthcare utilization in colorectal cancer (CRC) survivors with and without diabetes.

**SAMPLE & SETTING:** CRC survivors (N = 3,287) were identified from a statewide electronic health record database using International Classification of Diseases (ICD) codes. Data were extracted on adults aged 21 years or older with an initial diagnosis of stage II or III CRC with diabetes present before CRC diagnosis or no diagnosis of diabetes (control).

**METHODS & VARIABLES:** ICD codes were used to extract diabetes diagnosis and clinical outcome variables. Healthcare utilization was determined by encounter type. Data were analyzed using descriptive statistics, multivariable logistic, and Cox regression.

**RESULTS:** CRC survivors with diabetes were more likely to develop anemia and infection than CRC survivors without diabetes. In addition, CRC survivors with diabetes were more likely to utilize emergency resources sooner than CRC survivors without diabetes.

**IMPLICATIONS FOR NURSING:** Oncology nurses can facilitate the early identification of high-risk survivor groups, reducing negative clinical outcomes and unnecessarily high healthcare resource utilization in CRC survivors with diabetes.

**KEYWORDS** clinical outcomes; healthcare utilization; colorectal cancer survivors; diabetes

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Colorectal cancer is the third most common cancer diagnosed in men and women in the United States (Giovannucci et al., 2010), and there are about 1.5 million individuals living with colorectal cancer in the United States as of 2021 (American Cancer Society, 2021). Because individuals with colorectal cancer are living longer as a result of advances in screening and treatment, the potential for living with comorbid medical conditions has increased. Type 2 diabetes is a common comorbid condition among individuals with colorectal cancer (Peeters et al., 2015; Tsilidis & Ioannidis, 2015), with a reported 20% of individuals with colorectal cancer having a type 2 diabetes diagnosis (De Bruijn et al., 2013) compared to about 10% of the general population (Centers for Disease Control and Prevention, 2020). The higher prevalence of diabetes among individuals with colorectal cancer may, in turn, contribute to poorer clinical outcomes and increased utilization of healthcare resources.

Individuals with colorectal cancer and diabetes have poorer survival rates (American Cancer Society, 2021; Prieto et al., 2017; Storey et al., 2017; Storey & Von Ah, 2012), increased mortality (Prieto et al., 2017; Tao et al., 2020), and poorer quality of life (Vissers et al., 2013, 2014) than colorectal cancer survivors without diabetes. In general, individuals with colorectal cancer receiving chemotherapy are primarily managed in the outpatient setting. However, some survivors experience poorer clinical outcomes, such as bone marrow suppression (neutropenia, anemia) (Busti et al., 2018; Weycker et al., 2015), infection (Hong et al., 2014), diarrhea (Bultman, 2017; Dávila et al., 2018; González et al., 2017; Meyerhardt et al., 2003; Piper & Saad, 2017), and dehydration (El-Sharkawy et al., 2015), all of which may require the utilization of additional