

Preventing Infections During Cancer Treatment: Development of an Interactive Patient Education Website

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Despite advances in oncology care, infections from both community and healthcare settings remain a major cause of hospitalization and death among patients with cancer receiving chemotherapy. Neutropenia (low white blood cell count) is a common and potentially dangerous side effect in patients receiving chemotherapy treatments and may lead to higher risk of infection. Preventing infection during treatment can result in significant decreases in morbidity and mortality for patients with cancer. As part of the Centers for Disease Control and Prevention's (CDC's) Preventing Infections in Cancer Patients public health campaign, a public-private partnership was formed between the CDC Foundation and Amgen, Inc. The CDC's Division of Cancer Prevention and Control developed and launched an interactive website, www.PreventCancerInfections.org, designed for patients with cancer undergoing chemotherapy. The site encourages patients to complete a risk assessment for developing neutropenia during their treatment. After completing the assessment, patients receive information about how to lower the risk for infection and keep themselves healthy while receiving chemotherapy.

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Cancer remains the second most common cause of death in the United States, accounting for about one of every four deaths (American Cancer Society, 2014). With improvements in survivorship and the growth and aging of the U.S. population, the total number of people living with cancer will continue to increase (Warren, Mariotto, Meekins, Topor, & Brown, 2008). In addition, an estimated 60,000 patients with cancer are hospitalized each year in the United States for chemotherapy-induced neutropenia and, among those hospitalized, about 4,100 will die from this complication (Caggiano, Weiss, Rickert, & Linde-Zwirble, 2005). Neutropenia and subsequent infectious complications are among the most serious treatment-related toxicities of cancer treatment and result in preventable morbidity and mortality (Herbst et al., 2009; Lyman et al., 2010). Infections among immunosuppressed patients with cancer are life-threatening, with a mortality rate associated with febrile

neutropenia of 2%–21%, depending on the cancer type, type of chemotherapy, and other factors (Herbst et al., 2009; Lyman et al., 2010; Smith et al., 2006). Infections can be difficult to identify in this vulnerable population given a lack of clinical signs and symptoms from neutropenia and a decreased febrile response (Lyman et al., 2010). As a result of this difficulty, a patient's ability to recognize of the signs and symptoms of an infection is critical. Lowering the risk for developing infections is an important strategy to decrease poor outcomes (Herbst et al., 2009), and education programs for this population may help them reduce their risk. Because patients with cancer increasingly obtain health education from the Internet to find relevant information, and one in three Americans turn to the Internet to diagnose a medical condition, an online program may be an effective way to provide patients with information to prevent infections (Chou, Liu, Post, & Hesse, 2011; Fox & Duggan, 2013; Suggs & McIntyre, 2009).