



# The Missing Piece of Survivorship: Cancer Prevention

The patient, R.C., finished her chemotherapy for breast cancer on June 4, 2007. At 58, she was ready for a better year, putting cancer treatment behind her and beginning her new life after cancer. In 2014, I was surprised to see R.C. on the schedule for chemotherapy education for FOLFOX (leucovorin calcium, fluorouracil, and oxaliplatin). Colorectal cancer had been discovered during a routine colonoscopy. When I met with her, she was obviously shaken and asked, “What happened? I thought I was done with cancer.”

R.C.’s story is becoming increasingly common. We have improved cure and overall survival rates with expanded cancer screening programs, earlier cancer detection, and new treatment regimens. The five-year survival rate is now 68% for all cancers and 81% for childhood cancers (National Institutes of Health, 2013). The American Cancer Society ([ACS], 2016) states that there are 14.5 million cancer survivors living in the United States, growing to an estimated 19 million survivors by 2024. Of this growing group of survivors, the majority are adults who are aging and developing other health problems, including second cancers.

In 2016, the ACS estimates that there will be 1,686,210 new cases of cancer in the United States. Of these new cases, 99% will occur in adults and include common cancers, such as breast, prostate, colorectal, and lung. However, one in five of these new diagnoses will occur in a person who has already had another cancer—a new primary cancer in a cancer survivor (National Cancer Institute, 2016). In some cases, these diagnoses occur as a third or fourth new diagnosis in survivors. In fact, 1 in 12 cancer survivors will develop a new cancer (Donin et al., 2016). In the general population, an estimated one-

third of all cancers may be preventable (American Institute of Cancer Research, 2016). In cancer survivors, there are increased risks for second cancers related to carcinogenic effects of aging and previous cancer treatments. Identifying and modifying risk factors in cancer survivors, including lifestyle and health behaviors, is often a missing piece in cancer care and survivorship programs. Although we need to continue cancer surveillance during survivorship, we also need to teach survivors about lifestyle factors that may decrease their risk of developing new cancers.

Some risk factors for cancer cannot be changed. These include the aging process, a person’s genetic background, and previous cancer treatments. Aging is the number one cause of cancer and, although we celebrate the years of survival after a cancer diagnosis, we have to be aware of aging-related changes in health in cancer survivors.

Hereditary cancers account for 5%–10% of all cancers and newer, more comprehensive tests are being developed to identify and follow cancer patterns in survivors and their families. Finally, previous cancer treatments carry their own risks of second malignancies and require careful monitoring during survivorship. The younger the age at treatment, the higher the risk of second cancers both from ionizing radiation and cytotoxic chemotherapy.

## Lifestyle Changes

Cancer survivors can make lifestyle changes to decrease their risk of second, primary cancers. We can assess these behaviors and factors and teach survivors about changes to improve their overall health and decrease their risks for second cancers.

**Tobacco:** Smoking tobacco causes 90% of all lung cancers and is associated with one-third of all cancer deaths

We can develop survivorship plans that target survivors who are at risk, including those who are still smoking, overweight or obese, and need to improve their eating or decrease their alcohol intake.

(ACS, 2016). Even after a diagnosis of lung cancer, continued tobacco use is linked with the development of new cancers in the oropharynx and bladder. *Address tobacco use.*

**Weight:** Being obese is linked with about 20% of all cancer diagnoses and is significantly associated with endometrial, esophageal, and breast cancers. Fat tissue produces endogenous estrogen, and increased caloric intake stimulates production of insulin and insulin-like growth factors, both associated with cancer development. *Encourage healthy weight.*

**Viruses:** Human papillomavirus (HPV) causes virtually all cervical cancers, and increasing evidence links it to

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the majority of anal cancers and about 20% of cancers of the oropharynx. HPV vaccination of boys and girls can prevent 60%–90% of these cancers. Viral hepatitis B from infections with hepatitis B and C are associated with the development of liver cancers. Vaccination for hepatitis B and antiviral medications to control hepatitis C infections may decrease the incidence of this cancer. *Educate about vaccinations for HPV and hepatitis B.*

**Exercise:** The relationship of movement and dietary intake (energy balance) may reduce the incidence of obesity and decrease the risk of obesity-related cancers, such as breast and colorectal cancers. Exercise and weight management decrease the production of estrogen and insulin-like growth factors and decrease the incidence of hypertension and diabetes. The Oncology Nursing Society's Get Up–Get Moving program was developed for cancer survivors to decrease fatigue and increase quality of life. *Promote exercise.*

**Diet:** Twenty percent of all cancers are associated with poor nutrition and obesity (World Cancer Research Fund & American Institute for Cancer Research, 2007). Decreased risk has been associated with vitamin D intake, more cruciferous vegetables and healthy oils (e.g., olive oil), and less smoked, processed, and grilled meats. Recommendations include decreased refined carbohydrates and sugar-sweetened products (cereal, pastries). *Discuss healthy eating.*

**Sun exposure:** Almost all nonmelanomatous skin cancers are associated with sun and ultraviolet light exposure, roughly 5.4 million in 2016. One painful sunburn every two years triples the risk of developing a melanoma, the most deadly skin cancer. People with pale skin, light eyes, a family history of skin cancer, and greater than 50 moles are at higher risk. Protection is essential for all people, particularly cancer survivors, and recommendations in addition to sunscreen include staying out of the sun between 10 am and 4 pm,

wearing a shirt, hat, and sunglasses while outdoors, and, of course, avoiding tanning beds. *Review skin cancer prevention.*

**Alcohol:** Alcohol increases risks for certain cancers, such as breast cancer, and is linked with tobacco use and increased risk for head and neck cancers. In addition, excess alcohol intake increases weight gain and risk for obesity and is associated with increased inflammation. Recommendations include one glass or less per day for women and two glasses or less per day for men. *Encourage moderation in alcohol intake.*

## Survivorship Integration

Like my patient, R.C., a cancer diagnosis often prompts the question, “What can I do to prevent my cancer from coming back?” The other question should be, “How do I prevent other cancers?” The answer lies in cancer prevention and the adoption of a healthier lifestyle in addition to screening, surveillance, and routine follow-up. Now that we understand the risks of second cancers in cancer survivors, we need to integrate these facts into our cancer survivorship programs. We can develop survivorship plans that target survivors who are at risk, including those who are still smoking, are overweight or obese, and need to improve their eating or decrease their alcohol intake. These care plans are individualized and require long-term changes to improve health and decrease risk of second cancers and other chronic health problems, such as diabetes, hypertension, and heart disease. The overlap of the same healthy behaviors to prevent cancer and other chronic diseases presents a compelling case to work with primary care providers to address these behaviors.

In the Oncology Nursing Society's (2016) position statement on access to quality cancer care, cancer prevention, risk assessment, risk reduction, and access to clinical trials for cancer prevention are all key components of

quality cancer care. Oncology nurses, particularly those working in survivorship programs, have the opportunity to develop comprehensive programs in collaboration with primary care providers to improve the overall health of survivors. Most importantly, oncology nurses often have the “teachable moment” when caring for their patients and can guide them into a healthier lifestyle in survivorship. Cancer prevention is an integral part of cancer survivorship.

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