Overexpression of vascular endothelial growth factor (VEGF) by tumor cells promotes angiogenesis, which correlates with progressive tumor growth and poor outcomes in many types of cancer. Bevacizumab inhibits VEGF to promote regression of tumor vessels by limiting blood supply and tumor growth, enhancing delivery of chemotherapy, and inhibiting formation of new vessels. Combined with chemotherapy, bevacizumab prolongs progression-free and overall survival over chemotherapy alone in patients with metastatic carcinoma of the colon and rectum; unresectable, locally advanced, recurrent or metastatic non-squamous, non-small cell lung cancer (NSCLC); and metastatic HER2-negative breast cancers (mBC). Side effects, including hypertension, proteinuria, bleeding, arterial thrombotic events, and impaired wound healing, can be clinically significant, particularly in patients with risk factors. To optimize patient outcomes, nurses should understand bevacizumab’s role in cancer therapy, recognize symptoms of toxicity, and manage its side effects. This article describes the rationale for bevacizumab in the treatment of metastatic colorectal cancer, NSCLC, and mBC and discusses patient selection, treatment duration, and side-effect management to support the role of oncology nurses in caring for, educating, and enhancing treatment adherence among patients with cancer receiving bevacizumab. Two case studies are presented as examples of the complex scenarios nurses may encounter regarding these issues.