Neutropenia, the most common dose-limiting toxicity in patients with cancer treated with myelosuppressive chemotherapy, is associated with numerous negative consequences (Crawford, Dale, & Lyman, 2004). Patients with chemotherapy-induced neutropenia (CIN) are at increased risk for life-threatening infections, and the risk is greatest when the absolute neutrophil count (ANC) is less than 500/mm³ (Bodey, Buckley, Sathe, & Freireich, 1966). Infection in patients with neutropenia often manifests only as fever (i.e., febrile neutropenia). Febrile neutropenia not only has negative clinical consequences, but it also has substantial economic effects and consequences on patients’ quality of life (QOL). Because the rates of hospitalization for febrile neutropenia are high and the durations of hospitalization are long, febrile neutropenia puts a significant economic burden on the health-care system (Caggiano, Stolshek, Delgado, & Carter, 2001; Kuderer, Cosler, Crawford, Dale, & Lyman, 2002). Studies also have found that QOL is impaired in patients with CIN (Fortner et al., 2002; Okon et al., 2002).

One method of managing or reducing the incidence of CIN is to reduce or delay doses of chemotherapy. Such dose modifications occur frequently in community oncology practices, and nationwide practice-pattern surveys of medical records have shown that 56% of patients with early-stage breast cancer and 53% with non-Hodgkin lymphoma were undertreated (Lyman, Dale, & Crawford, 2003; Lyman, Dale, Friedberg, Crawford, & Fisher, 2004). Dose reductions and delays, especially in curable tumors, can compromise treatment outcomes and long-term survival (Bonadonna & Valagussa, 1981; Budman et al., 1998; Epelbaum et al., 1990; Kwak, Halpern, Olshen, & Homing, 1990; Lepage et al., 1993). Another approach is to use supportive hematopoietic colony-stimulating factors (CSFs), which reduce the incidence, severity, and duration of CIN and its complications.