Improving the Safety of Chemotherapy Administration:
An Oncology Nurse-Led Failure Mode and Effects Analysis

Laura Ashley, PhD, Rachel Dexter, RN, Fay Marshall, RN, Brenda McKenzie, RN, Maggie Ryan, RN, and Gerry Armitage, RN, PhD

Administration of chemotherapy is an important aspect of cancer nursing, and one for which demand has risen sharply since the early 2000s (National Chemotherapy Advisory Group, 2009; Summerhayes, 2003). Treatment regimens typically involve several chemotherapeutic and supportive agents, many of which require individualized dosing (e.g., body surface area, renal function) and are administered by a variety of routes (e.g., orally, IV) and at different rates (e.g., bolus, continuous infusion). Delivery of a regimen at any one administration session can, therefore, take several hours and involve multiple nurses. And, as patients progress through treatment, side effects and toxicity must be monitored and controlled and regimens may change. This complex and dynamic nature of chemotherapy administration makes the process highly vulnerable to errors (Gandhi et al., 2005; Walsh et al., 2009; Weinberg et al., 2010). In addition, as patients with cancer often are frail and immunocompromised, and chemotherapeutic agents are high-alert medications, errors in this process can result in serious patient harm and even death (Cousins & Upton, 1994; Institute for Safe Medication Practices [ISMP], 2008; Trinkle & Wu, 1996).

Perhaps unsurprising, therefore, is that in a survey of more than 200 oncology nurses, 95% reported “being frightened, scared and anxious” when first working with chemotherapy (Verity, Wiseman, Ream, Teasdale, & Richardson, 2008, p. 244). Although it is impossible to eliminate the risks inherent in health care, taking steps to minimize errors and their consequences is advisable.

Traditionally, efforts to improve the safety of healthcare processes have been reactive and generally have entailed focused investigations following particular adverse incidents. However, in addition to intermittent retrospective actions following specific incidents, a need exists for broad, ongoing, proactive efforts to manage risk and improve safety before errors occur (Christian et al., 2006; Senders, 2004; Smith, Boul, Woods, & Johnson, 2010). In addition to a move toward proactive safety management in health care, a shift away from person-centered views of safety and toward a more