Chemotherapy Administration: Using Simulation Case-Based Scenarios to Assess Chemotherapy Competency

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Ongoing assessment of nursing competency is necessary to ensure that safe care is being delivered to patients. Competency assessments are familiar phenomena among nurses, independent of practice settings. Nurses graduate with basic skills; as skill sets expand, it becomes important to verify that skill and technique accuracy are maintained. As healthcare becomes more specialized, nurses who commit to specific patient populations and become proficient in specialized skill sets also must have those skill sets assessed for continued competency beyond initial training. Chemotherapy regimens can be complex and have been identified as high-alert medications because of the potential for patient safety compromise if an error occurs (Institute for Safe Medication Practices, 2008). When errors occur in the use of high-alert medications, the consequences are debilitating to patients (Institute for Safe Medication Practices, 2008).

The multi-step process for chemotherapy, including ordering, prescribing, transcription, preparation, and administration, provides the medium for multiple errors to occur and patient safety to be compromised (Sheridan-Leos, Schulmeister, & Hartranft, 2006). The Oncology Nursing Society ([ONS], 2009) has taken the position that, in an effort to provide quality cancer care to patients with cancer, professional nurses must be competent in the essentials of oncology nursing care. Those competencies include being educated in the administration of oncology therapies as well as regularly updating oncology knowledge and skill sets based on current research and best practice (ONS, 2009). Because of the complexities of chemotherapy delivery and the devastation that can occur if an error happens, chemotherapy competency should be assessed on a regular basis once initial competency has been obtained.

Traditional methods that nurse educators use for assessing competency include self-learning packets, return demonstration, observation on the job, and skills marathons with nurses moving from station to station in groups, in addition to other assessment options. The issue with many of those skill assessment techniques is that they are not evaluated in their actual context (Allen et al., 2008). For example, chemotherapy competency often is assessed with a self-learning packet or test format rather than being assessed in the context of an administration environment. When competency is not assessed in the actual environmental context, the assessment often can be deceiving as to how the nurse actually performs in a real patient situation (Allen et al., 2008).

Simulation via a human patient simulator allows for competency assessment to be conducted in an environment most like actual clinical scenarios without the stresses of performing in front of a patient (Kuhrik, Kuhrik, Rimkus, Tecu, & Woodhouse, 2008). Nurses not only demonstrate competency in a safe environment, but feel free to ask questions and be remediated as needed without causing patient harm or embarrassment to the nurse (Schreiber, Foran-Lee, & Ross, 2010). Use of simulation technology allows for promotion of communication among participants, development of a heightened skill set, and opportunity for making decisions based in the moment (Ford et al., 2010). Simulation is applicable to all levels of nursing staff, ranging from new graduates to experienced nurses. The educator conducting the session is able to develop scenarios that emulate actual patient experiences using algorithms that can be programmed into the simulator. The simulator mannequin can react to the nurses' actions or lack thereof. Simulations can range from basic scenarios that require very little reaction of the simulator to complex scenarios where the simulator needs to be programmed to react to numerous nursing actions. The complexity of the session is decided by the educator. Promotion of critical thinking occurs in that type of environment, as nurses must be able to put theory into practice (Kuhrik et al., 2008).

Simulation has been used for all areas of nursing education and specialty fields. Much has been published on its use in critical care and emergency areas, as well as other specialized fields such as psychology and now oncology. Carpenter and Wortham (2008) outlined the annual assessment evaluation that was conducted in the simulation environment for staff nurses on an oncology unit. Staff nurses were presented with three oncology-based scenarios and were asked to react as they would with a real patient. Kuhrik et al. (2008) developed a similar program in which oncology nurses were given scenarios surrounding a patient with sepsis and another involving a patient with anaphylaxis. The algorithm for each scenario was programmed into a simulation mannequin, and nurses were expected to respond appropriately to the patient; correct interventions yielded positive patient outcomes and incorrect interventions were not beneficial to the patient. A pre- and postsimulation evaluation was completed by participants, and positive results were noted regarding staff comfort level and the interpretation of their competency.

Methodology

The purpose of the current project was to assess chemotherapy competency of inpatient oncology nurses in an environment as close to the actual patient administration setting as possible. The goal of the educator was to use the competency assessments in a nonthreatening simulation setting where the nurse felt safe, comfortable asking questions, and where immediate feedback was provided. Competency was assessed using a scenario-based case in an effort to emulate actual chemotherapy administration.