

# CVAD Homecare Management

## Investigating the use of a digital education tool during nurse-delivered instruction to parents for new central lines in children with cancer

Jennifer L. Raybin, MSN, RN, CPNP, Suhong Tong, MS, Nancy King, MSN, RN, CPNP, Wanda Simms, BSN, RN, CPHON®, Roger Giller, MD, Kathleen Montgomery, PhD, RN, and Verna L. Hendricks-Ferguson, PhD, RN, CHPPN, FPCN, FAAN

**BACKGROUND:** Research on parent understanding of homecare management of external central venous access devices (CVADs) for children with cancer is limited.

**OBJECTIVES:** The goal was to investigate whether the use of a DVD education intervention reduced adverse complications and improved parent education for homecare management of CVADs for pediatric patients with cancer.

**METHODS:** Participants were randomized to an experimental group (DVD and nurse teaching) or a control group (nurse teaching). Postintervention evaluation included parent satisfaction and CVAD knowledge proficiency, blood infection rates, use of alteplase, and CVAD replacement.

**FINDINGS:** Fifty-four enrolled caregiver–patient dyads completed the study measures, with 21 dyads assigned to the control group and 33 assigned to the experimental group. Alteplase was ordered significantly less often in the experimental group. No other findings were significant.

### KEYWORDS

vascular access device; patient education; pediatric oncology; nursing

### DIGITAL OBJECT IDENTIFIER

10.1188/19.CJON.295-300

**PARENTS OF CHILDREN WITH NEWLY DIAGNOSED CANCER** report intense emotional distress and the inability to retain information because of the overwhelming volume of information at diagnosis (Sahler et al., 2013). One critical piece of education involves the care of a central venous access device (CVAD). Providing clear information about the CVAD is imperative to preventing life-threatening complications (Long & Marsland, 2011; Wilson, Deeter, Rafferty, Comito, & Hollenbeak, 2014). Comprehensive education methods ensure parental confidence and competence when managing external CVADs, particularly as cancer care for children increasingly occurs in the home (Heiser Rosenberg et al., 2017; Rodgers et al., 2016).

### Literature Review

A literature review conducted in PubMed® identified articles from 2008 through 2018 using the following keywords or terms: *CVAD*, *central line*, *pediatric oncology*, *children*, and *cancer*, as well as the MeSH (Medical Subject Headings) terms *vascular access device* and *patient education*. From the 52 articles identified, 8 discussed education strategies. Reference lists were then reviewed for additional relevant and notable studies.

### Benefits of CVAD Education

This review identified the importance of CVAD education for patients and their families to improve outcomes, reduce complications, and decrease costs (Ullman, Kleidon, Cooke, & Rickard, 2017). Outcomes, such as reduced central line–associated bloodstream infection (CLABSI) rates, increased perceived self-efficacy of parents, and reduced risk of CVAD malfunction rates, along with ability to deliver the medication using tissue plasminogen activator, were associated with standardized CVAD education (DeLa Cruz, Caillouet, & Guerrero, 2012; Furtwängler, Laux, Graf, & Simon, 2015; Rinke et al., 2013; Rosenbluth et al., 2014; Zellmer, Zimdars, & Safdar, 2016).

Patients with cancer are particularly at risk for developing CLABSIs during the care of CVADs (Rinke et al., 2013). Personalized and standardized education for adult patients with cancer has been shown to decrease catheter-related infections, improve patient knowledge, and decrease