Addressing the Silence: a Need for Peripheral Intravenous Education in North America

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Abstract

Background: *Greater than 90% of hospitalized patients receive some form of peripheral intravenous therapy for the delivery of fluids, medication, or parenteral nutrition. Nurses are the largest group of clinicians responsible for the placement and management of peripheral intravenous therapies. The literature suggests that many graduate nurses lack the confidence, knowledge, and ability to not only place peripheral intravenous catheters, but also adequately maintain peripheral intravenous sites. This fact, combined with the increasing acuity of hospitalized patients with multiple comorbidities, makes peripheral intravenous placement and management even more challenging. This drove a team of researchers to explore the current state of peripheral intravenous education in health care institutions and examine potential gaps in ongoing professional development and competency assessment.*

Methods: *A convenience sample of United States and Canadian health care institution representatives were recruited to participate in a 12-item web-based questionnaire regarding peripheral intravenous education and staff competency. Participants were recruited via the Association for Vascular Access listserv, newsletter, and annual meeting. Members were also asked to forward the recruitment e-mail to other health care institutions to ensure a representative sample.*

Results: *A total of 611 health care institution representatives participated in the study. The large majority (80%) worked in a health care institution with more than 150 beds. Over half (67%) indicated that they provide peripheral intravenous education to their staff using varying modalities to deliver the education. The majority (54%) of health care institutions reported spending between 1 and 5 hours on peripheral intravenous education while, alarmingly, 38% reported spending less than 1 hour on peripheral intravenous education for their staff. Despite these numbers, over half of the participants (58%) believe peripheral intravenous education is a shared responsibility between pre-licensure nursing schools and health care institutions.*

Discussion: *The study highlights the varying level of peripheral intravenous education and competency evaluation of staff working in health care institutions. The results suggest the need for an evidence-based, standardized peripheral intravenous curriculum that could be used in both health care institutions and nursing education programs.*

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Conclusion: *Currently, there are inconsistencies in the peripheral intravenous education and competency programs used in health care institutions. The authors will use the results of this study to design and examine the effects of a standardized, evidence-based peripheral intravenous curriculum to assist health care professionals responsible for peripheral intravenous education and competency assessment. Given the risk for complications from peripheral intravenous therapy, it is hoped that improved peripheral intravenous education will reduce potential complications and improve patient outcomes.*
Keywords: *Peripheral intravenous (PIV), PIV research, PIV education and competency, PIV curriculum, Nursing*

Introduction

Venous access for the delivery of intravenous fluids, medications, nutrient delivery, or blood sampling is the most frequently performed (over 1.4 billion annually) invasive procedure in the United States.[1] Greater than 90% of hospitalized patients receiving some form of peripheral intravenous therapy (PIV) for the delivery of fluids, medication, or parenteral nutrition.[2] Unfortunately, PIV catheters are prone to complications. Competent care delivered by an educated clinician is a key facet to minimizing adverse outcomes.[3-5] This is important as complications can increase length of stay and injuries, which increase patient costs. This fact, combined with the increasing acuity of hospitalized patients with multiple comorbidities, makes PIV placement and management even more challenging.

Nurses are the largest group of clinicians that insert PIV catheters.[4] While other clinicians may start PIV catheters, nurses are the predominant health care professionals responsible for the placement and management of PIVs.[4] The literature suggests that many graduate nurses (GNs) lack the confidence, knowledge, and ability to not only place PIV catheters but also adequately maintain PIV sites.[5-7] While the research demonstrates varying knowledge among graduate nurses, less is known about the level and type of PIV education being delivered to experienced nurses and GNs working in health care organizations.

These facts drove a team of researchers to explore the current state of PIV education in health care institutions and examine potential gaps in ongoing professional development and competency assessment. The purpose of this descriptive study was to understand the current state of PIV education and competency assessment in United States (US) and Canadian health care institutions.

Background

A review of literature regarding PIV education was conducted resulting in 23 relevant articles (Table 1). PIV therapy is one of the top 3 skills GNs felt uncomfortable performing.[6] Even experienced nurses have expressed a lack of confidence in their PIV catheter skills.[8] Some studies demonstrated that delivery of a didactic PIV education program in combination with hands-on training resulted in significant improvements in PIV therapy outcomes.[4,8-12] In fact, many (50-57%) GNs, although receiving PIV education in nursing school, never had the opportunity to place a PIV catheter.[9,10,13] Once employed, 11% of nurses developed their PIV skills via the "see one, do one, teach one" method.[10] The literature reinforced concerns regarding the inconsistencies in PIV education and the limited opportunities for psychomotor PIV training for many new GNs.

Other studies have associated a lack of education as 1 of the top reasons for complications and early PIV catheter removal.[7,14,15] PIV site complications, such as phlebitis and infiltration, may result in increased lengths of stay and injuries, increasing patient costs.[3,7,16] Use of an enhanced PIV curriculum by health care institutions has the potential to reduce PIV complications and associated costs.

Current literature suggests the need for a universal, comprehensive PIV education program.[4,9,11,12] Time dedicated to PIV content and opportunities to perform PIV catheter placement varies among health care institutions' competency assessment and professional development programs leaving many new graduates and novice nurses to learn this complex skill during their first nursing job.

Method

Design

Using a descriptive design, this study investigated how US and Canadian health care institutions educate and assess PIV competence of practicing nurses. Participants were recruited to complete a 12-item questionnaire (Table 2) assessing the level of PIV education provided in the US and Canadian health care institutions. As an incentive, participants were offered the opportunity to enter a drawing for a $50 Amazon gift card by entering their contact information on a separate online site.

Data Collection

Following institutional review board approval, a convenience sample of health care institution representatives were recruited to participate in the study. Prospective participants were recruited via the Association for Vascular Access (AVA) newsletter and an e-mail containing a short video describing the study was distributed via the AVA listserv. In addition to the newsletter, a member of the research team shared the opportunity to participate with attendees at the annual AVA meeting. AVA members were also asked to forward the recruitment e-mail to other health care institutions in their state/region/province to ensure a representative sample. Those consenting to participate were taken to the online questionnaire via the link provided in the recruitment e-mail.