

Background

In pediatric patients, central venous catheters (CVCs) have multiple uses, including medication delivery (Government of Alberta., 2020) and Total Parental Nutrition (TPN) infusions. While the CVC is necessary for the patient’s treatment, it is not without risk.

- Catheter Breaks
- Central-line Associated Bloodstream Infections
- Dislodgement
- Contamination

As a result, pediatric patients can experience increased hospitalization, possible restriction of movement, and delayed development. One promising intervention is a wearable device (Gus Gear Vest) that can keep the catheter secure while protecting it from contamination and other risks.

Purpose

To explore caregiver and nurse satisfaction of pediatric patients with CVCs that utilize a wearable protective device. There is lack of research to support use of these devices.

**\*Wearable devices are an extra measure utilized among pediatric patients for nurses and parents to further protect the CVC dressing and catheter from complications such as trauma and infections.\***



Preliminary Results

Table 1: Comparative Summary of Patient Satisfaction Scores over time for Protective Vest Usage

Question	Patient Satisfaction Score											
	30 Days (n = 8)				60 Days (n = 7)				90 Days (n = 6)			
	Mean (SD)	Min	Max	Median	Mean (SD)	Min	Max	Median	Mean (SD)	Min	Max	Median
Q1: The experience of using the vest was good.	4.63 (0.518)	4	5	5	4.57 (0.787)	3	5	5	4.33 (0.816)	3	5	4.5
Q2: Vest assisted in keeping the dressing clean, dry, and intact.	4.38 (0.744)	3	5	4.5	4.43 (0.976)	3	5	5	4.67 (0.516)	4	5	5
Q3: The pt did not experience skin breakdown, or the device maintained pt's skin integrity.	4.38 (1.061)	2	5	5	4.29 (0.756)	3	5	4	4.33 (1.211)	2	5	5
Q4: The instructions were easy to understand.	4.29 (0.488)	4	5	4	4.29 (0.756)	3	5	4	4.67 (0.516)	4	5	5
Q5: It was easy for the child to perform activities or move around with the vest on.	4.63 (0.518)	4	5	5	4.57 (0.787)	3	5	5	4.17 (1.169)	2	5	4.5
Q6: Removing and replacing the vest was easy.	4.00 (0.926)	3	5	4	3.86 (1.215)	2	5	4	3.83 (1.602)	1	5	4.5
Q7: Using the vest requires frequent adjustments.*	2.88 (0.641)	2	4	3	3.00 (1.000)	1	4	3	2.00 (0.894)	1	3	2
Overall	29.86 (2.545)	26	33	31	29.00 (4.655)	21	34	31	28.00 (5.329)	19	32	30.5

\*Reverse scored

Table 2: Comparative Summary of Nurse Satisfaction Scores for Protective Vest Usage

Question	Nurse Satisfaction Score (n = 8)			
	Mean (SD)	Min	Max	Median
Q1: It was easy to assess the dressing.	3.88 (1.126)	2	5	4
Q2: Vest assisted in keeping the dressing clean, dry, and intact.	4.50 (0.756)	3	5	5
Q3: The pt did not experience skin breakdown, or the device maintained pt's skin integrity.	4.75 (0.463)	4	5	5
Q4: The instructions were easy to understand.	4.50 (0.535)	4	5	4.5
Q5: It was easy to administer medications.	4.63 (0.744)	3	5	5
Q6: Removing and replacing the vest was easy.	3.88 (0.991)	3	5	3.5
Q7: Using the vest requires frequent adjustments.*	3.13 (1.246)	1	4	4
Overall	29.25 (3.536)	22	34	29

\*Reverse scored

Theme 1: Physical Details of Gus Gear: Positive Experiences & Benefits

Secure, Customizable, Adjustable, Durable, Comfortable

Practical and easy to use, simple design

Prevents contamination & prevents line trauma

Does not limit child's physical activities

Theme 2: Challenges & Recommendations

Can take practice to get on and off

Skin irritations: too tight, friction on G-tube sites, Velcro can irritate skin

Patient can outgrow rapidly

Can be bulky under clothes

Methods

Study Design

- Mixed methods cross-sectional design

Setting

- Children’s Health, primarily pediatric Gastroenterology patients

Sampling

- Parents with Children who have a CVC
- Nurses caring for children with a CVC and vest

Subjects

- Children ages 0-12 currently using or willing to use a wearable device

Data Collection

- Parent & Nurses satisfaction survey; Parent Interviews

Discussion

There is limited literature on interventions to maintain children’s optimal activity levels without compromising the securement of their CVC. This study will add to the existing literature by exploring the parents’ viewpoint on the feasibility of using this device along with parents’ and nurses’ satisfaction. The results from this study will be helpful to plan longitudinal studies and interventions to meet the needs of patients with CVCs using the vest device.

