

InfoGraphic Educational Tool Validation to Aid in Minimizing Accidental Dislodgement

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Purpose/Design

The purpose of this qualitative study was to validate the use of an infographics educational tool to promote greater operational understanding by clinicians of a safety release valve (Orchid Safety Release Valve™, Linear Health Sciences, Oklahoma City, OK) for use with intravenous devices. While use of infographics in professional education is becoming more common, validation of content by targeted clinicians provides a higher level of credibility for the education process. The validation process creates an opportunity to improve the content and user understanding that equates to a better educational tool. The combination of visual, text and qualitative input improvement is designed to work together to provide the most effective learning process for the clinician.

Methods

The educational materials were developed in accordance with the safety valve instructions for use and in conjunction with infographics experts. For initial evaluation of the infographics, the concept of content validity and appearance were assessed. A validation tool of six open ended questions was created and revised by two clinicians. The revised validation tool was then tested with a group of nursing clinicians attending a professional continuing nursing educational meeting on the topic of Accidental Dislodgement of Intravenous Catheters. The selection of clinician reviewers was voluntary and included those with nursing licensure working within a clinical setting using intravenous devices with patients. Participation was voluntary as demonstrated in completion of the validation tool.

Results

Clinician reviewer responses provided support and content validity for clarity, relevance and suitability of design for use with nursing education of the Orchid device. Table 1 represents the validation and summary of responses to the qualitative questions and Table 2 is a breakdown of respondent comments to the content contained in the Infographics and Quick Reference Guide.

Evaluation of Infographics Education Tool Validation

Respondents ____15____
Date ____May 29, 2018____

Using the chart below, rate the following aspects of the infographic education and quick reference guide

Evaluation Questions	a Completely Agree	b Mostly Agree	c Neutral	d Mostly Disagree	e Completely Disagree
1. Was the information on the Infographics and Quick Reference Guide easy to understand? If not, please describe, page 2.	9 60%	4 27%	2 13%	0	0
2. Was the content covered relevant information for education of a product in the clinical setting? If not, please describe on page 2.	9 60%	3 20%	2 13%	0	0
3. Were any terms ambiguous or with unclear meanings? If so, please describe and suggest alternative text. No 1 Yes 2 Bad question - eliminate	7 47%	1 6%	1 6%	1 6%	1 6%
4. Did the illustrations and text provide clarity for the subject understanding? Were they clear and comprehensive? If not, please describe on page 2.	7 47%	6 40%	1 6%	0	0
5. Were the illustrations and the Quick Reference Guide steps easy to follow? If not, please indicate which parts.	9 60%	3 20%	2 13%	0	0
6. Did the illustrations and Quick Reference Guide text and steps provide education that would motivate appropriate device use? If not, please describe.	9 60%	3 20%	2 13%	0	0

Following your review of the infographics Orchid Safety Release Valve and Quick Reference Guide, we would ask you to provide additional comments as applicable:

1. Was the information **easy to understand**? If not, please describe.
Yes - 4
Photos helpful. Would like to see larger font. I need live demo for all the dots to connect.
2. Was the content covered **relevant information** for education in the clinical setting?
If not, please indicate which parts.
Yes - 6
Content covered in presentation was much more diverse than specific quick reference guide for the product which made the evaluation a little confusing.
3. Were any terms **ambiguous or with unclear meanings**?
If so, please describe and suggest alternative text.
No - 1. Loose securement should include dressing. "Sterile Valve"? Although it says do not place on sterile field - confusing and questionable. Yes - Dislodgement I thought was referring to PIV coming out not disconnection of tubing.
Male/Female Luer? (unable to read last word??)
Tension event was ambiguous
What is elastomeric seal?
Suggest "MRI Compatible" and "Latex Free"
4. Did the illustrations and text provide **clarity** for the subject understanding? Was the text **clear and comprehensive**?
If not, please describe.
Yes - 6
I liked the illustrations of the hand, page 2, very easy to understand.
Feel the need to demo this...how hard do you have to pull for product to "break away"? 4 lbs?
I would like to see a clear picture of the device once activated by a tension event, so one can see the closed end. Only because...a picture is worth 1000 words.
The dressing on the hand looks nice but it is incorrect. The dressing would completely cover the valve - the hub of the PIV does not usually have an opening at that location - recheck the dressing split...
Picture with breaking - wording should state: Dislodgement is most frequently caused by patient confusion or removal of the catheter, loose dressing or tape or tubing tangled in the bed or linens.
5. Were illustrations and the Quick Reference Guide **steps easy to follow**?
If not, please describe.
Yes - 6
I would use a picture for step 4 showing the device connected to the IV tubing, capped off and the loose end of the IV extension set. Just to be very clear how to disconnect after intermittent infusion. On step 4 I worry that clinicians are going to not follow the step where you do NOT leave the device attached to the patient. This should be listed first and be in a font to emphasize this.
6. Did the illustrations and Quick Reference Guide text and steps **provide education** that would motivate appropriate device use? If not, please describe.
Yes - 5
Not by itself (Quick Reference Guide) Page 1 is motivating (meaning the back of the QRG).

Conclusions

The information represented in the qualitative study provided valuable feedback for improving an educational guide with applicability to the type of clinician likely to use the device. Following completion of the validation study the tools were modified according to the ratings and responses. The final tool results are suggestive that the infographics tool will be beneficial in providing relevant information and education for the use of this safety release valve.

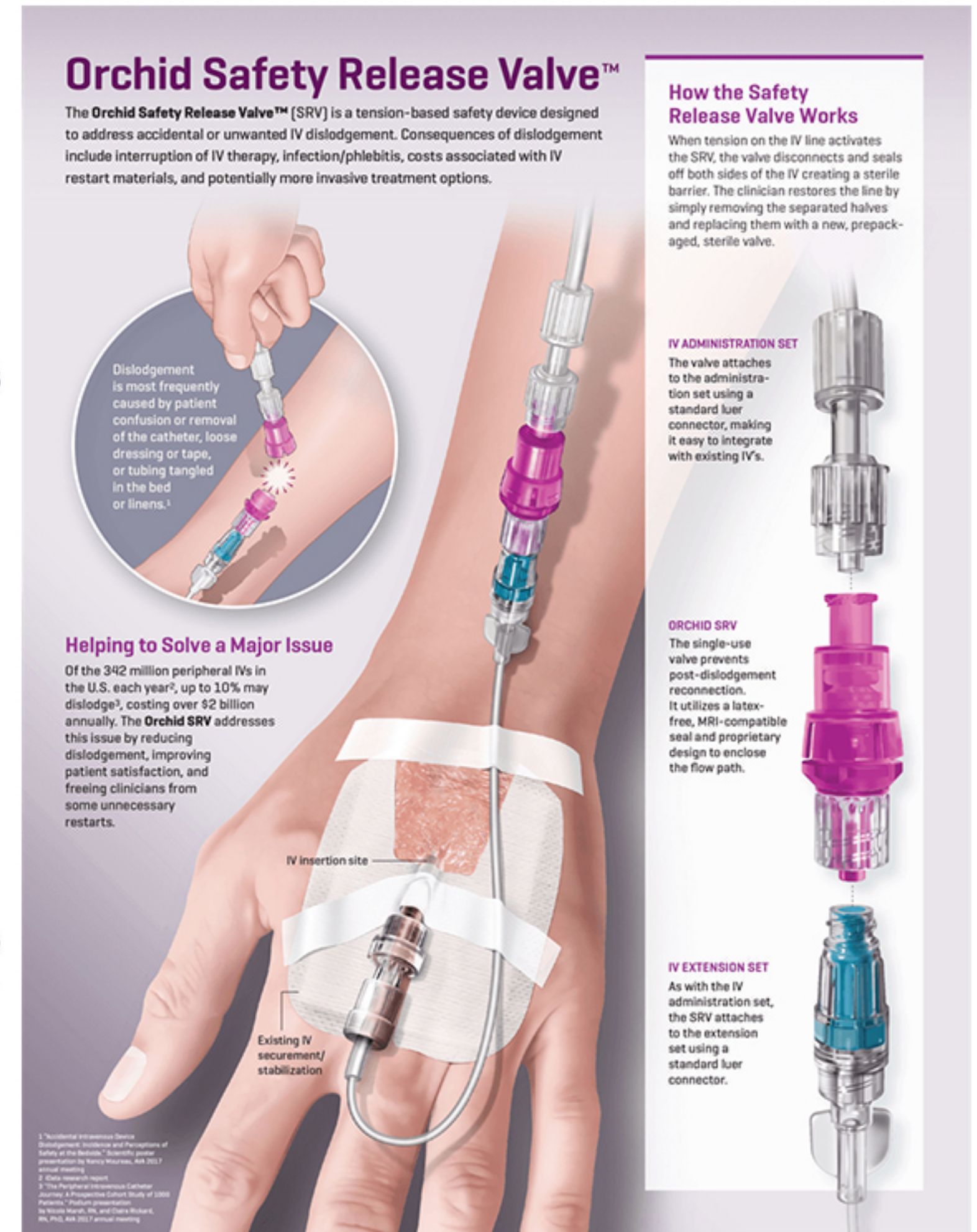
Educational Tool and Discussion

Educational Tool

Majority results from the validation study reflected complete agreement for understanding, relevance, clarity, quality of illustrations and motivation to use device effectively. Additional responses in lower range and qualitative comments identified areas within the tool that needed improvement.

Limitations

Responses associated with qualitative research are subjective in nature, based on opinion and judgment of the individual. Qualitative assessments present limitations in the dependence on individual skill of the researcher and are easily influenced by personal bias.



Quick Reference Guide



- INDICATIONS**
- The Linear Health Sciences™ Orchid Safety Release Valve™ (hereafter SRV) is a tension activated safety release valve and is intended for single patient use in infusion and blood administration sets. The Orchid SRV™ is designed to disconnect and close the flow path upon a tension event beyond 4 lbs.
- GENERAL INSTRUCTION**
- How it's Supplied: The Orchid SRV™ is supplied as a standalone device or as part of extension and IV administration sets.
 - Replace per institutional policy with other IV line items, or upon single activation.
 - The Centers for Disease Control (CDC), Infusion Nurses Society and other organizations publish guidelines useful in developing facility protocols and policies.
 - Perform hand hygiene before each procedure. Use standard contact precautions.
- PRECAUTIONS**
- Caution: Federal Law restricts this device to sale by or on the order of a Physician.
 - Fluid pathway and areas under both tip caps are sterile. Do not place on a sterile field.
 - Single use only - Never attempt to reconnect Orchid SRV™ after a break away event.
 - Do not leave the Orchid SRV™ attached to an extension set or IV hub that is not connected to an administration set.
 - Orchid SRV™ should never be left as the terminal component of a set without using a dead-end cap.
 - Do not tape or otherwise cover Orchid SRV™.
 - Contraindications: The Orchid SRV™ has no absolute or relative contraindications. Orchid SRV™ is not intended for use with power injection applications.
 - Always use aseptic technique.

1. **INSPECT THE ORCHID SRV™:**
 - Discard if device is separated, if end caps are missing or loose in package, or if package appears disrupted.
2. **CONNECTING THE ORCHID SRV™:**
 - Peel back lid on the chevron package. Remove the Orchid SRV™ with both end caps in place.
 - Remove female luer and cap and attach the Orchid SRV™ to the desired administration set by rotating clockwise until secure.
3. **CONNECTING THE ORCHID SRV™:**
 - Prime the Orchid SRV™ in line with the administration set prior to removing the vented male luer end cap and per facility policy and procedures.
 - Remove the vented male luer and cap and repeat clockwise attachment to the vascular access device hub or extension set side to complete the flow circuit. Connect by tightening the clear luer lock on the Orchid SRV™, not the purple SRV™ body.
4. **NOTES ON PERFORMING AN INTERMITTENT INFUSION:**
 - Leave the Orchid SRV™ attached to the disconnected administration set and place a new, sterile dead-end cap over the end. Reattach to vascular access device hub or extension set by tightening the clear luer lock collar on the SRV™.
 - Do not leave Orchid SRV™ attached to extension set or IV hub that is not connected to an administration set. Orchid SRV™ should never be left as a terminal component of a set without use of a dead-end cap. Replacement of the Orchid SRV™ is not required upon conclusion of intermittent infusion.
5. **DISCONNECTION OF THE ORCHID SRV™:**
 - To disconnect, rotate clear luer lock collar counter clockwise.
6. **WHEN A TENSION EVENT OCCURS:**
 - The SRV will activate, leaving 1/2 of the SRV™ attached to either side of the infusion system.
 - Upon necessary replacement of the SRV™, clamp the administration set, remove and discard the Orchid SRV™ half remaining on the administration set. Replace with a new, pre-packaged SRV™.
 - Prime the SRV™ per facility policy and procedures, leaving male luer and cap in place to retain sterility during priming.
7. **WHEN A TENSION EVENT OCCURS:**
 - Remove the remaining activated SRV™ half from the vascular access hub or extension set and dispose.
 - Disinfect the hub per institutional policy and procedures.
 - Remove the male luer and cap of the new Orchid SRV™ and repeat clockwise attachment to the vascular access device hub or extension set to complete the flow circuit. Connect by tightening the clear luer lock on the Orchid SRV™, not the purple SRV™ body.