

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	The I-DECIDED® clinical decision-making tool for peripheral intravenous catheter assessment and safe removal: A clinimetric evaluation
AUTHORS	Ray-Barruel, Gillian; Cooke, Marie; Chopra, Vineet; Mitchell, Marion; Rickard, Claire

VERSION 1 - REVIEW

REVIEWER	Anabela de Sousa Salgueiro Oliveira Nursing School of Coimbra, Portugal
REVIEW RETURNED	13-Nov-2019

GENERAL COMMENTS	<p>I appreciate the opportunity to review this article. I-DECIDED® is a relevant tool for clinical practice and can contribute to improving the quality of the care provided to patients with peripheral intravenous catheter. I want to comment on some issues that were unclear to me:</p> <ul style="list-style-type: none">- What were the criteria used for establishing the number of participants in the different assessment moments? What are the socio-demographic characteristics of the sample?- It is noted in one comment of the experts/clinicians that some patients had communication problems. What were the criteria for their selection?- When was the clinimetric evaluation carried out?- Why did the authors not evaluate the internal consistency, in accordance with what was established with the I-DECIDED study protocol?- Why did the authors not evaluate the intra-rater reliability, in accordance with the I-DECIDED study protocol?
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REVIEWER	Eddy Lang University of Calgary
REVIEW RETURNED	21-Nov-2019

GENERAL COMMENTS	This manuscript reports on research which evaluates the clinimetric evaluation of an instrument designed for bedside
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	<p>nurses in the evaluation of peripheral IV catheters for an in-hospital setting. Specifically, the article focuses on the content validity and inter-rater reliability of the items in the tool. Content validity was evaluated with conducted in two phases with two distinct groups. The latter component occurred mostly through survey completion and achieved response rates of between 32% for experts and 44% for clinicians in multiple English-speaking countries. Inter-rater reliability was achieved through paired assessments by 34 individuals for a total of 68 assessments. The authors report a high degree of success with content validity indices in excess of 0.90 for their vascular access experts as well as their clinicians. Overall inter-rater reliability measures were reported at 87% with a range of 0.59 for prevalence and bias adjusted measures related to education and perfect scores for more objective elements such as the principle related to documenting the decision.</p> <p>My overall impression of this work is that it is a very robust evaluation of the I-DECIDED tool. The proposed methodology employed is sound and the results a reflection of the innate characteristics of the tool. The work is also compliant with the GRRAS checklist. From a higher level perspective, the authors make an excellent case for why such an instrument is required and that in turn is based over widespread practice variation including suboptimal practices that create unnecessary pain and risk for patients with prolonged IV catheters. The authors can also be congratulated for the patient and family-facing prompts that have been added and reflect recent research on patient concerns and educational needs.</p> <p>The manuscript is clear, well-organized and well-written. The methodology is laid out clearly and could be reproduced. My only concern about this paper are related to the conclusions made around feasibility and acceptability. While the authors report general impressions around these two constructs their evaluation appears speculative from my vantage point. I-DECIDED may place a significant strain on nursing workload and may create opportunity costs. I would suggest that this be considered a limitation of the study and a specific focus of future research.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1	Authors' comments
<p>I appreciate the opportunity to review this article. I-DECIDED® is a relevant tool for clinical practice and can contribute to improving the quality of the care provided to patients with peripheral intravenous catheter.</p> <p>I want to comment on some issues that were unclear to me:</p>	<p>We appreciate your support of this tool.</p>
<p>- What were the criteria used for establishing the number of participants in the different assessment moments? What are the socio-demographic characteristics of the sample?</p>	<p>P.6 Face validity – “eight members of a vascular access working group, all experienced Australian nurse researchers with solid knowledge of current evidence and guidelines”</p>

	<p>P.7 Content validity – “international experts were vascular access researchers and infection control professionals who had contributed to the most recent evidence-based vascular access guidelines. ... During June–July 2017, the content validity surveys were emailed to male and female respondents with diverse expertise and skills, from a range of English-speaking countries. Twenty-two experts and 25 clinicians from adult and paediatric specialties in the authors’ clinical networks ... Survey completion was accepted as consent, and identifying details of respondents were not collected.”</p> <p>P.8 Reliability – ... “inter-rater reliability was evaluated between the research nurses and a convenience sample of 3 to 6 staff nurses (male and female, aged 25–60) at each hospital for a further 15 paired PIVC assessments. The number of participants available for each inter-rater reliability assessment depended on how many nurses had patients with a PIVC in situ at the time of the assessment. Each staff nurse only participated in one inter-rater reliability assessment.”</p>
<p>- It is noted in one comment of the experts/clinicians that some patients had communication problems. What were the criteria for their selection?</p>	<p>P.11: “can be difficult if patients have communication difficulties (e.g. stroke, capacity to understand, or capacity to give feedback) ...”</p> <p>As per Appendix 2, Key principle 1</p>
<p>- When was the clinimetric evaluation carried out?</p>	<p>P.6 Face validity – December 2015</p> <p>P.7 Content validity – June–July 2017</p> <p>P.8 Inter-rater reliability with research nurses – August 2017, February 2018</p> <p>Inter-rater reliability with staff nurses – April 2018</p>
<p>- Why did the authors not evaluate the internal consistency, in accordance with was established with the I-DECIDED study protocol?</p>	<p>Thank you for pointing out this oversight.</p> <p>This has been added to the paper:</p> <p>P.9 Cronbach’s coefficient α was used to calculate the internal consistency of the items in the tool.</p>

	P.14 "Overall Cronbach's alpha was 0.746"
- Why did the authors not evaluate the intra-rater reliability, in accordance with the I-DECIDED study protocol?	This has been added to Limitations: P.19 "Each assessor only assessed each PIVC on one occasion, therefore it was not possible to evaluate intra-rater reliability."
Reviewer: 2	
<p>This manuscript reports on research which evaluates the clinimetric evaluation of an instrument designed for bedside nurses in the evaluation of peripheral IV catheters for an in-hospital setting. Specifically, the article focuses on the content validity and inter-rater reliability of the items in the tool. Content validity was evaluated with conducted in two phases with two distinct groups. The latter component occurred mostly through survey completion and achieved response rates of between 32% for experts and 44% for clinicians in multiple English-speaking countries. Inter-rater reliability was achieved through paired assessments by 34 individuals for a total of 68 assessments. The authors report a high degree of success with content validity indices in excess of 0.90 for their vascular access experts as well as their clinicians. Overall inter-rater reliability measures were reported at 87% with a range of 0.59 for prevalence and bias adjusted measures related to education and perfect scores for more objective elements such as the principle related to documenting the decision. My overall impression of this work is that it is a very robust evaluation of the I-DECIDED tool. The proposed methodology employed is sound and the results a reflection of the innate characteristics of the tool. The work is also compliant with the GRRAS checklist. From a higher-level perspective, the authors make an excellent case for why such an instrument is required and that in turn is based over widespread practice variation including suboptimal practices that create unnecessary pain and risk for patients with prolonged IV catheters. The authors can also be congratulated for the patient and family-facing prompts that have been added and reflect recent research on patient concerns and educational needs.</p> <p>The manuscript is clear, well-organized and</p>	Thank you for this very positive and well-considered response to the paper.

well-written. The methodology is laid out clearly and could be reproduced.	
My only concern about this paper are related to the conclusions made around feasibility and acceptability. While the authors report general impressions around these two constructs their evaluation appears speculative from my vantage point. I-DECIDED may place a significant strain on nursing workload and may create opportunity costs. I would suggest that this be considered a limitation of the study and a specific focus of future research.	<p>We agree and this has been added to Limitations.</p> <p>P.19 "Feasibility and acceptability of the tool were reported as generally positive in this study, but further research is recommended to evaluate the strain on nursing workload of introducing this tool."</p>

VERSION 2 – REVIEW

REVIEWER	Anabela de Sousa Salgueiro Oliveira Nursing School of Coimbra, Portugal.
REVIEW RETURNED	01-Jan-2020

GENERAL COMMENTS	<p>The article describes the clinical properties of the I-DECIDED® tool for advising patients with PIVC. The clinimetric evaluation of the tool focuses in particular on content validity and inter-rater reliability, with very robust results.</p> <p>Regarding the issue of not presenting the internal consistency of the instrument as planned, I found that you have chosen to include the overall consistency result. Thus, in the Results (page 22, line 15) instead of the subtitle "Inter-rater reliability", it suggested replacing it with "Reliability". It also suggested that the result of Cronbach's alpha should be presented after the kappa values for each item of the tool.</p> <p>The suggestions given were integrated by the authors and the questions asked clarified. This will be an important tool for healthcare professionals but especially for patients.</p>
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REVIEWER	Eddy Lang Cumming School of Medicine University of Calgary
REVIEW RETURNED	26-Dec-2019

GENERAL COMMENTS	The revised manuscripts adequately addresses my concerns as well as those of the other reviewer.
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VERSION 2 – AUTHOR RESPONSE

Reviewer 1	Authors' comments
The article describes the clinical properties of the I-DECIDED® tool for advising patients with	Thank you

<p>PIVC. The clinimetric evaluation of the tool focuses in particular on content validity and inter-rater reliability, with very robust results.</p> <p>Regarding the issue of not presenting the internal consistency of the instrument as planned, I found that you have chosen to include the overall consistency result. Thus, in the Results (page 22, line 15) instead of the subtitle "Inter-rater reliability", it suggested replacing it with "Reliability".</p> <p>It also suggested that the result of Cronbach's alpha should be presented after the kappa values for each item of the tool.</p> <p>The suggestions given were integrated by the authors and the questions asked clarified. This will be an important tool for healthcare professionals but especially for patients.</p>	<p>This has been changed.</p> <p>This has been done.</p> <p>We appreciate your support of this tool.</p>
<p>Reviewer 2</p>	
<p>The revised manuscripts adequately addresses my concerns as well as those of the other reviewer.</p>	<p>Thank you</p>