

Inter-rater reliability of a peripherally inserted central catheter insertion site between nurses and patients using the PICC-SAT

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BACKGROUND

Many patients are discharged from hospital with their peripherally inserted central catheter (PICC) still in place. Monitoring the insertion site for clinical and research purposes is important for identifying potential complications, however the extent to which a patient is able to reliably report the condition of their catheter insertion site is uncertain.

AIM

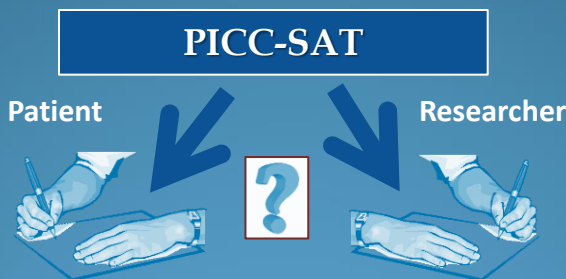
To assess the inter-rater reliability of a new instrument; the Peripherally Inserted Central Catheter – Site Assessment Tool (PICC-SAT), designed to test the level of agreement between nurses and patients when assessing a PICC site (condition of the dressing and complications at the insertion site).

METHODS

The study was conducted at a 929 bed, acute care hospital in Brisbane, Australia. A subset of patients, who were enrolled in a single-centre, randomised controlled trial comparing four different dressing and securement devices for PICC sites were included. A 7-item instrument, containing questions about the condition of the dressing and the insertion site was developed. Assessment was conducted once by the research nurse and, within a few minutes, independently by the patient. Proportions of agreement and Cohen's kappa were calculated.

RESULTS

Seventy three patients agreed to participate. The percentage agreement ranged from 70 to 100%. For important clinical signs (redness, swelling, ooze pus and tracking) there was a high level of agreement (97 – 100%). Kappa scores for all questions, fell into the category 'substantial agreement' (0.6-0.8) or 'almost perfect' agreement (>0.8).



PICC Site Assessment Tool (PICC-SAT)

- When was your PICC dressing last changed?

- Is your PICC dressing still completely stuck to your arm?
 Yes
 No
- Are any corners of the dressing lifting?
 Yes
 No
- Apart from the original dressing, is there anything else being used to secure the PICC line to your arm (e.g. tape, elasticised tubular bandage cover)?
 Yes: _____
 No
- When you look at the entry point of your PICC line, can you see any:

Redness?	Swelling?	Ooze? (e.g. blood)	Pus?
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
- Can you see a red line travelling from your PICC line on your arm?
 Yes: (Go to Q7)
 No: (Survey is complete)
- Can you feel a hard lump when you feel along the red line?
 Yes
 No

Thank you for taking the time to complete this survey!

Figure 1. PICC-SAT

Item	Observer agreement	Kappa	95% Confidence intervals
Dressing lifting	97.3%	.82	.68 to .96
Additional securement	87.7%	.70	.54 to .86
Redness	100.0%	.73	.39 to 1.00
Swelling	97.3%	.65	.21 to 1.00
Ooze	100.0%	.82	.57 to 1.00
Pus	100.0%		Not estimable
Tracking	98.6%		Not estimable

Table 1. Table of findings (observer agreement)

DISCUSSION

Patient reported outcome measures are becoming increasingly important in clinical trials; however a patients' ability to assess the condition of their PICC insertion site has not previously been assessed. Using a newly developed instrument, the PICC-SAT, we found a high level of agreement between patient and nurse assessments of the PICC site. The cohort was a heterogeneous group of acute hospital in-patients, representative of those who would generally be included in trials investigating issues associated with central venous access devices. We believe the instrument could be also used for patient-reported follow-up assessment of the insertion site of an intravenous peripheral catheter or other central catheter, due to the instrument's focus on potential complications that are common to all intravenous catheters.

CONCLUSION

The clinical items on the PICC-SAT have substantial reliability making it a useful instrument for patients in the home setting to assess for possible signs of localised infection or dressing failure associated with PICC insertion sites.

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Figure 2. Examples of dressing complications/ooze.