



To provide a scoping review of decision aids for PIVC insertion including tools, clinical prediction rules, and algorithms (TRAs) and their findings on factors associated with insertion success” Carr et al (2017).

Abstract:

BACKGROUND: First-time peripheral intravenous catheter (PIVC) insertion success is dependent on patient, clinician, and product factors. Failed PIVC insertion are an under-recognized clinical phenomenon.

OBJECTIVE: To provide a scoping review of decision aids for PIVC insertion including tools, clinical prediction rules, and algorithms (TRAs) and their findings on factors associated with insertion success.

METHODS: In June 2016, a systematic literature search was performed using the medical subject heading of peripheral catheterization and tool* or rule* or algorithm*. Data extraction included clinician, patient, and/or product variables associated with PIVC insertion success. Information about TRA reliability, validity, responsiveness, and utility was also extracted.

ReTweet if useful... Review of algorithms for the insertion of peripheral intravenous catheters
[@ivteam #ivteam](https://ctt.ec/dj14f+)

Click To Tweet

RESULTS: We screened 36 studies, and included 13 for review. Seven papers reported insertion success ranging from 61%-90% (4030 insertion attempts), 6 on validity, and 5 on reliability, with none reporting on responsiveness and utility. Failed insertions were associated with obesity (odds ratio [OR], 0.71-1.7; 2 studies) and smaller gauge PIVCs (OR, 6.4; 95% Confidence Interval [CI], 3.4-11.9). Successful insertions were associated with visible veins (OR, 0.87-3.63; 3 studies) or palpable veins (OR, 0.79-5.05; 3 studies) and inserters with greater procedural volume (OR, 4.4; 95% CI, 1.6-12.1) or who predicted that insertion would be successful (OR, 1.06; 95% CI, 1.04-1.07). Definitions of insertion difficulty are heterogeneous such as time to insert to a number of failed attempts.

CONCLUSIONS: Few well-validated reliable TRAs exist for PIVC insertion. Patients would benefit from a validated, clinically pragmatic TRA that matches insertion difficulty with clinician competency.

Reference:

Carr, P.J., Higgins, N.S., Cooke, M.L., Rippey, J. and Rickard, C.M. (2017) Tools, Clinical Prediction Rules, and Algorithms for the Insertion of Peripheral Intravenous Catheters in Adult Hospitalized Patients: A Systematic Scoping Review of Literature. *Journal of Hospital Medicine*. 12(10), p.851-858.

doi: 10.12788/jhm.2836.

Thank you to our partners for supporting IVTEAM

