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.

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:


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