

Clinical Question:

In emergency department patients with known or suspected difficult intravenous (IV) access does warming, intraosseous, ultrasound-guided, subcutaneous rehydration therapy or infrared methods compared to traditional techniques improve IV access with fewer attempts, less pain, and/or improved patient satisfaction while in the emergency department (ED)?

Problem:

Establishing vascular access is one of the most common procedures carried out in the emergency department and is a priority of care for the critically ill and unstable patient. The condition of the patient often plays a role in the likelihood of successfully attaining vascular access. Conditions associated with difficult access include obesity, chronic illness, hypovolemia, IV drug abuse, and vasculopathy (Blavias & Lyon, 2006; Chinnock et al., 2007; Constantino et al., 2005; Doniger et al., 2009; Heinrichs et al., 2012; Miles et al., 2011; Nafiu et al., 2010; Sebbane et al., 2013). Children under the age of two years, particularly young infants, are also more likely to present with difficult vascular access (Chapman, 2011; Heinrichs et al., 2012). Difficult IV access is defined as multiple attempts and/or the anticipation of special interventions being required to establish and maintain peripheral venous access (Kuensting et al., 2009). Difficulty in attaining peripheral access can lead to delays in care and contributes to ED crowding (Witting, 2012).

Description of Decision Options / Interventions and the Level of Recommendation:		
Warming	Application of heat improves IV success rate and decreases time required to gain access	B
	Dry heat may be more effective than moist heat	C
	For pediatric patients, heat may counteract the vasoconstriction associated with EMLA Cream™	C
	The practice of using forced air warmers without a blanket known as “hosing” is not recommended	NR
Intraosseous (IO)	Intraosseous access is significantly more expeditious than standard IV access and should be considered early when known or suspected difficult venous access exists	A
	In alert patients, pain with intraosseous access insertions is rated as minor	A
	Intraosseous lidocaine administration prior to fluid / medication infusion reduces the pain felt by alert patients	C
Ultrasound Guided	Ultrasound-guided access should be considered for adult and pediatric patients with difficult access that have had unsuccessful PIV attempts using traditional methods.	A
	Ultrasound-guided access is a technique that can effectively be performed by physicians, nurses, and ED technicians	A
	Ultrasound-guided techniques may result in improved patient satisfaction	C
	When the external jugular access is not visible, ultrasound-guided peripheral access is significantly more successful than external jugular access	C
Subcutaneous	Subcutaneous rehydration therapy is an alternative to peripheral IV insertion for the mildly to moderately dehydrated pediatric and elderly patients in the emergency department when oral rehydration efforts have been unsuccessful.	B
Alternative	There is insufficient evidence to support the use of alternative devices such as near infrared light and transillumination to facilitate peripheral IV insertion.	I/E

A	Level A (High)	Based on consistent and good quality of evidence; has relevance and applicability to emergency nursing practice.
B	Level B (Moderate)	There are some minor inconsistencies in quality evidence; has relevance and applicability to emergency nursing practice.
C	Level C (Weak)	There is limited or low-quality patient-oriented evidence; has relevance and applicability to emergency nursing practice.
NR	Not Recommended	Based upon current evidence.
I/E	Insufficient Evidence	Insufficient evidence upon which to make a recommendation.
N/E	No Evidence	No evidence upon which to make a recommendation.

Access the full clinical guideline at: <http://bit.ly/2uRHZef>