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NENA Position Statement: Ultrasound Guidance for Peripheral Intravenous Cannulation

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Problem

Ultrasound guidance can increase peripheral vein cannulation success by nurses in the Emergency Department (ED). Unfortunately, ED nurses are not routinely trained to use ultrasonography for peripheral vein cannulation and may not have access to the required equipment.

Statement of Position

NENA believes that

1. Ultrasound guidance should be routinely used for peripheral intravenous (IV) insertions in patients with known or suspected difficult IV access
2. ED nurses should be trained to safely place ultrasound-guided IVs
3. EDs should provide access to point-of-care ultrasound machines, to the equipment needed to perform ultrasound-guided peripheral IVs, and ensure that their staff receives appropriate training.

Rationale

1. Intravenous cannulation is a commonly performed ED intervention, but approximately 12% of patients will have difficult-to-cannulate veins (Fields et al., 2014). These patients face delayed vascular access, laboratory investigation, and analgesia, with subsequent prolonged lengths of stay (Davis et al., 2021). In patients with known or anticipated difficult-to-cannulate veins; defined as two failed direct IV attempts, or an Adult Difficult Intra Venous Access Scale (A-DIVA) score greater than 2 (Van Loon, et al., 2019), ultrasound-guided IV insertions have been shown to decrease the number of IV attempts (Davis et al., 2021; Costantino et al., 2005; Costantino et al., 2010; Doniger et al., 2009; Bahl et al., 2016; İsmailoğlu et al., 2015; Vinograd, et al., 2019; Feinsmith et al., 2018), decrease time to successful IV placement (Costantino, et al., 2005; Doniger, et al., 2009; Bahl, et al., 2016; Vinograd, et al., 2019), improve patient satisfaction (Costantino, et al., 2005; Doniger, et al., 2009; İsmailoğlu, et al., 2015), prolong IV patency duration (Vinograd, et al., 2019), and decrease central venous catheter use (Shokoohi, et al., 2013).
2. Internationally, ED nurses have successfully and safely developed and employed ultrasound-guided peripheral vascular access programs (Bahl, et al., 2016; İsmailoğlu, et al., 2015; Feinsmith, et al., 2018; Miles et al., 2012; Brannam et al., 2004; Blaivas, & Lyon, 2006; Carter et al., 2015; Keyes et al., 1999). Similar first pass and overall cannulation success rates have been demonstrated in Canadian EDs (O'Dochartaigh, Ma et al., 2020; O'Dochartaigh, Picard et al., 2020b).
3. Research (Gottlieb et al., 2017) and consensus guidelines (RNAO, 2021; Gorski, et al., 2021; Moore, et al., 2019) have established best practice standards to support the adoption and

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use of ultrasound guidance for peripheral vein cannulation. Studies have shown that standardized education and training can ensure nurse competency (Feinsmith, et al., 2018; Miles et al., 2012; Edwards & Jones, 2018; Bell & Spencer, 2021) and that these programs can be nurse-led and implemented in departments without pre-existing expertise (e.g., Appendix 1; O'Dochartaigh, Ma et al., 2020; O'Dochartaigh, Picard et al., 2020). Compliance with these best practice standards requires small investments in specialized equipment, such as probe covers and longer-length IV cannulae (O'Dochartaigh, Ma et al., 2020; O'Dochartaigh, Picard et al., 2020, Gottleib, et al., 2017; RNAO, 2021; Gorski, et al., 2021; Pandurangadu et al., 2018).

RESOURCES

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