

# International Survey of Peripheral Vasopressor Infusions in Critical Care (INFUSE)

Arwa Abu Sardaneh<sup>a,b</sup>, Jonathan Penm<sup>a,c</sup>, Matthew Oliver<sup>d,e</sup>, David Gattas<sup>e,f</sup>, Andrew J McLachlan<sup>a</sup>, Christie James<sup>g</sup>, Christina Cella<sup>h</sup>, Ohoud Aljuhani<sup>i,j</sup>, Nicole M. Acquisto<sup>k,l</sup>, Asad E. Patanwala<sup>a,b</sup>

<sup>a</sup>School of Pharmacy, University of Sydney, Australia, <sup>b</sup>Department of Pharmacy, Royal Prince Alfred Hospital, Australia, <sup>c</sup>Department of Pharmacy, Prince of Wales Hospital, Australia, <sup>d</sup>Department of Emergency Medicine, Royal Prince Alfred Hospital, Australia, <sup>e</sup>School of Medicine, University of Sydney, Australia, <sup>f</sup>Department of Intensive Care Service, Royal Prince Alfred Hospital, Australia, <sup>g</sup>Department of Pharmacy, Grange University Hospital, United Kingdom, <sup>h</sup>Canadian Society of Hospital Pharmacists, Canada, <sup>i</sup>Pharmacy Practice Department, King Abdulaziz University, Saudi Arabia, <sup>j</sup>Department of Pharmacy, King Abdulaziz University Hospital, Saudi Arabia, <sup>k</sup>Department of Pharmacy, University of Rochester Medical Center, United States, <sup>l</sup>Department of Emergency Medicine, University of Rochester Medical Center, United States

## BACKGROUND

Early use of vasopressors is associated with decreased mortality in critically ill patients with shock. Peripheral vasopressor infusions (PVI) enable the early administration of vasopressors prior to insertion of a central venous catheter. However, PVI are associated with an increased risk of extravasation injury. Currently, there are no consensus guidelines for the safe and effective administration of PVI in critical care.

## AIM

To describe current clinical practice regarding PVI administration in critically ill adult patients.

## METHODS

An international multi-centre cross-sectional survey was distributed electronically to critical care hospital pharmacists in Australia, UK, US, Canada, and Saudi Arabia from April to July 2022.

The survey consisted of questions regarding PVI administration guidelines, choice of PVI, and treatments for PVI extravasation injury.

## RESULTS

Hospital pharmacists from 132 institutions responded to the electronic survey.

Norepinephrine PVI were utilised in 86% of institutions (n=113/132).

In 50% (n=66/132) of institutions, there was a preference to administer one or more PVI over norepinephrine as a first-line agent.

The most common alternative first-line PVI overall was phenylephrine (71%, n=47/66). Metaraminol was the most common first-line PVI in the UK and Australia (85%, n=17/20) (Figure 1).

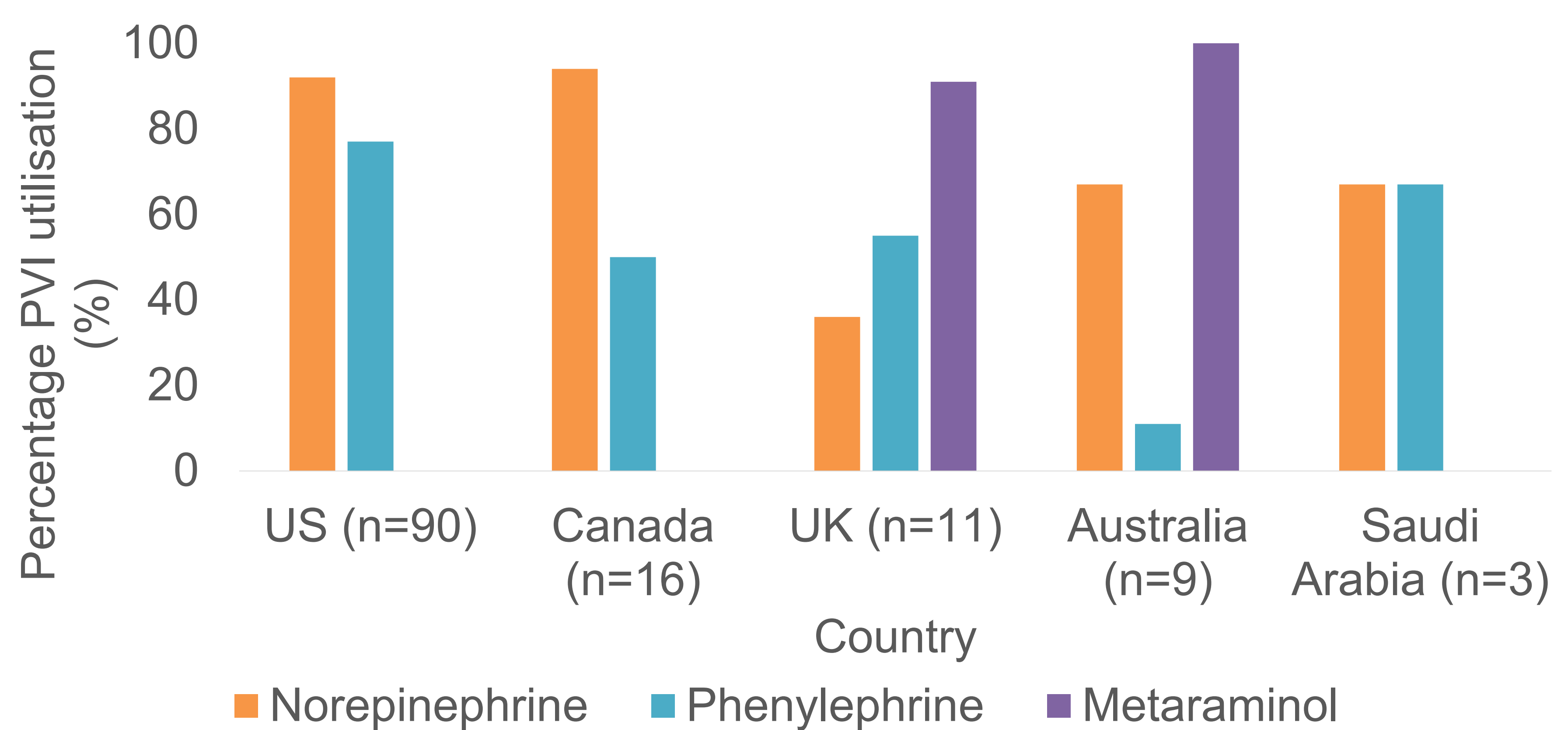


Figure 1: Utilisation of select peripheral vasopressor infusion by country  
†Multiple vasopressors can be used as per local clinical practice. ‡Metaraminol is not approved for use in US, Canada, or Saudi Arabia

A PVI guideline was present at 44% (n=58/132), and absent at 51% (n=67/132) of institutions (Table 1).

Table 1: Local clinical practice recommendations regarding PVI administration in critically ill adult patients

	PVI guideline (n=58)	No PVI guideline (n=67)	P value
Recommendation for a maximum duration for PVI (N, %)	44 (76)	15 (22)	<0.01
Recommended maximum duration of PVI (median hours, IQR) <sup>‡</sup>	24 (18 – 24)	24 (6 – 24)	0.41
Recommendation to administer PVI in a vein in or proximal to the antecubital fossa (N, %)	40 (69)	21 (31)	<0.01
Recommendation for increased frequency of monitoring for PVI compared to CVI (N, %)	35 (60)	21 (31)	<0.01
Recommended treatment guideline for vasopressor extravasation injury (N, %)	51 (88)	44 (66)	<0.01

CVI: central vasopressor infusion; PVI: peripheral vasopressor infusion <sup>‡</sup>Results reported for those who have a recommended maximum duration for PVI

## DISCUSSION

There is limited guidance and high variability in clinical practice regarding PVI administration in critically ill adult patients across hospitals internationally. Further research is required to investigate differences in PVI administration recommendations in regard to clinical outcomes to guide the safe and effective use of PVI in critical care.