

# Is Intraosseous Access being Appropriately Considered during Adult In-Hospital Cardiac Arrests?

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## Background

Obtaining vascular access is a key aspect of resuscitation following cardiac arrest [1]. It should be established swiftly and cause minimal disruption to cardiopulmonary resuscitation (CPR).

Recent evidence has shown a stepwise decrease in survival with increasing interval of time to adrenaline administration [2].

UK Resuscitation Council guidelines state that intraosseous (IO) should be considered if venous access is not established within two minutes [3].

IO access has been well studied in paediatric and trauma resuscitation, but there is little research assessing its use during in-patient adult cardiac arrests.

This study aims to establish the extent to which IO devices are used during adult in-hospital cardiac arrests in the Severn Deanery.

## Methods

- Internet survey of anaesthetists, intensivists and resuscitation officers in the Severn Deanery
- Adult in-hospital cardiac arrests
- Between November 2013 and January 2014

## Results

63 responses received

- 25% of participants had attended a cardiac arrest where IO access was used
- The IO device was inserted after the second round of CPR in 44% of cases
- Overall 60% of healthcare practitioners had attended a cardiac arrest where they thought IO access should have been considered but was not.
- Reasons offered included:
  - no suggestion by the team leader (69%)
  - lack of equipment (53%) and
  - lack of confidence amongst the team (46%)
- 35% of participants questioned were not aware of ALS guidance on IO access
- 25% did not know where IO insertion devices were kept.

## Discussion

The UK Resuscitation Council guidelines state that IO access should be considered after two minutes of attempting IV access. This usually coincides with the second round of CPR.

There is a failure to insert IO devices within this time frame during adult in-hospital cardiac arrests. Limited equipment availability and lack of consideration of IO access are the primary reasons for this. IO devices are often considered as a last resort following multiple failed attempts at IV access.

To improve this, greater emphasis on IO access during in-hospital resuscitation is needed. This could be achieved with dedicated IO insertion workshops and failed IV access scenarios during resuscitation courses. To improve equipment availability IO insertion devices should be included in emergency bags that accompany intensive care doctors to cardiac arrests.

High quality CPR should be the focus of resuscitation following cardiac arrest. Repeated attempts at IV access may distract the team from achieving this goal.

The IO route is a quick and effective way of establishing vascular access that needs to be better employed during in-patient resuscitation.

## References

1. Anson JA. Vascular access in resuscitation: is there a role for the intraosseous route? *Anaesthesiology* 2014
2. Donnino et al. Time to administration of epinephrine and outcome after in-hospital cardiac arrest with non-shockable rhythms: retrospective analysis of large in-hospital data registry. *BMJ* 2014 348:g2038.
3. UK Resuscitation Guidelines 2010

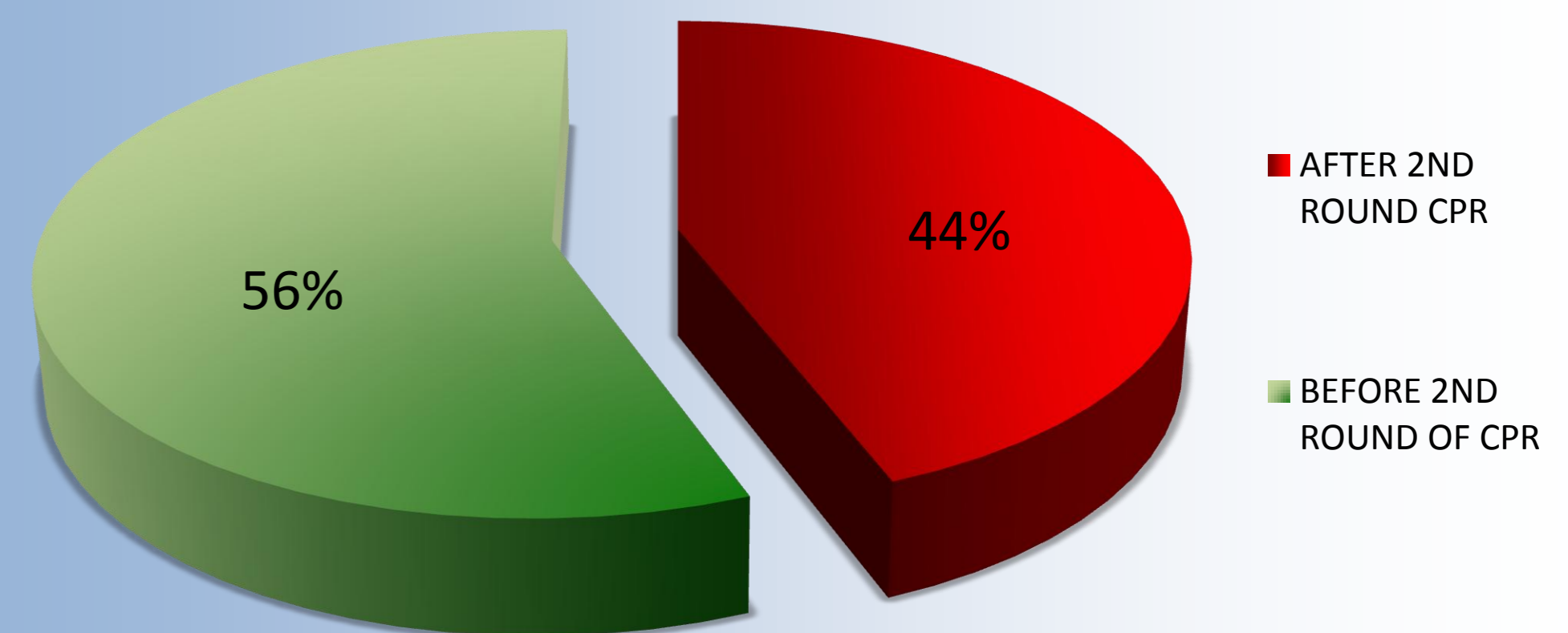


FIG 1. WHEN IO ACCESS WAS ACHIEVED

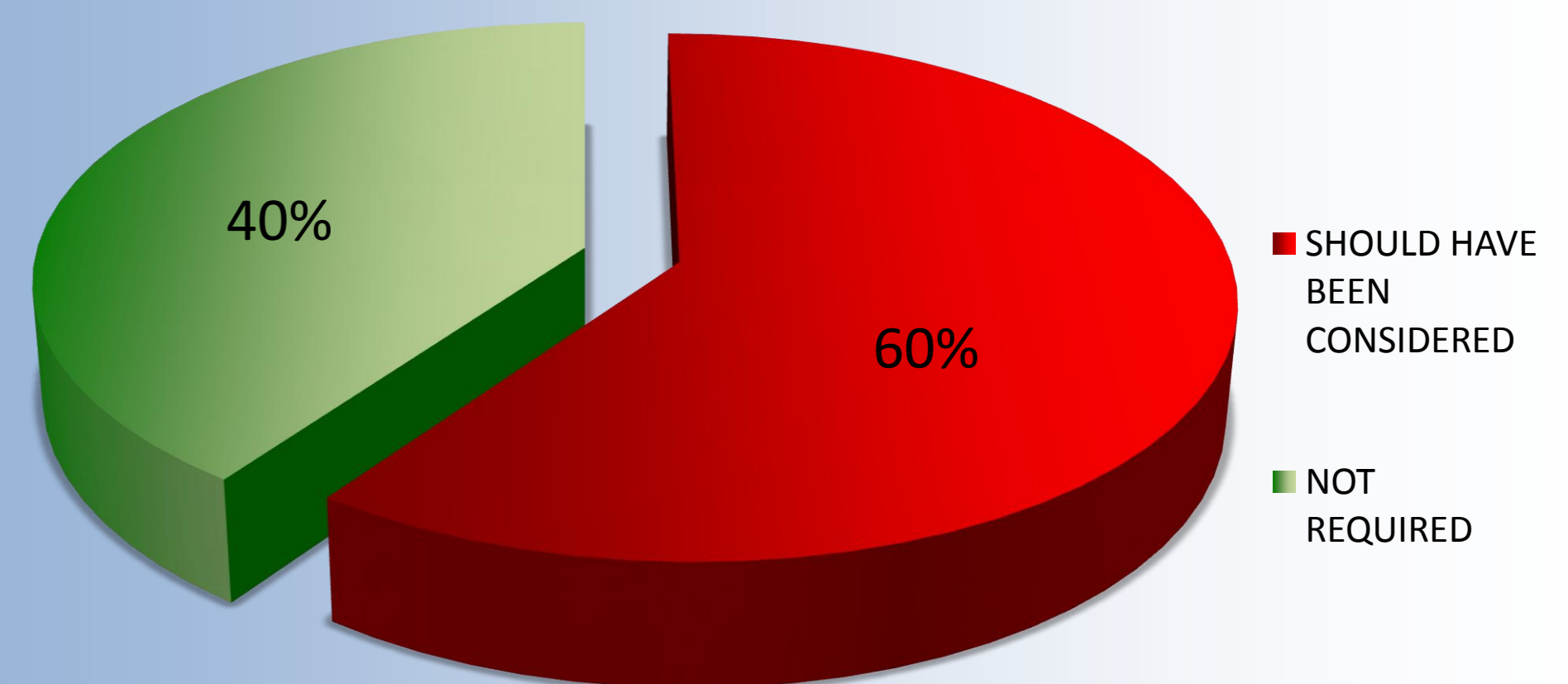


FIG 2. PERCENTAGE OF CARDIAC ARRESTS WHERE IO ACCESS SHOULD HAVE BEEN CONSIDERED

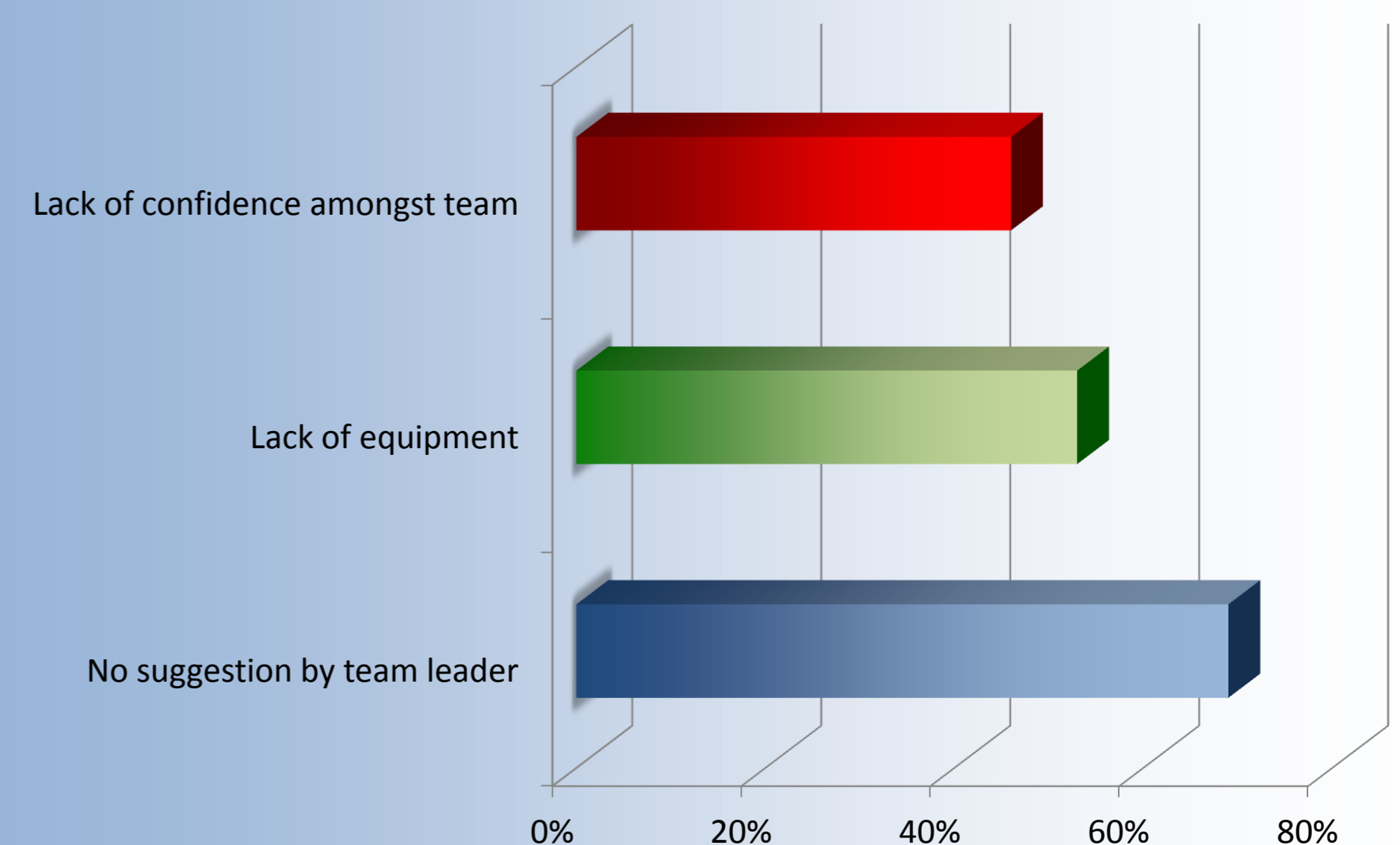


FIG 3. REASONS FOR FAILURE TO INSERT IO DEVICE