

## Intracavitary ECG method to confirm catheter tip position for paediatric PICC insertion

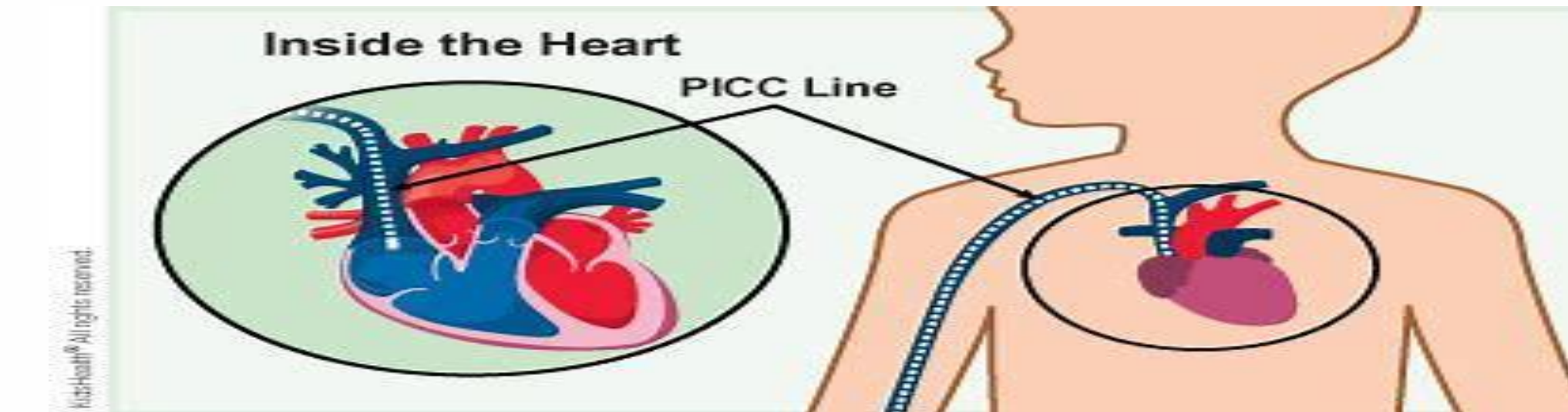
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### Introduction and rationale

Best evidenced national and national guidelines including expert clinical consensus agree and advocate that intracavitary ECG method is the gold standard for catheter tip position during PICC insertion. In the UK, this practice is widely used in the adult population but not so much within paediatric patients where insertion with fluoroscopy remains the most common approach. Within the Organisation there were delays and elevated waiting times, sometimes affecting effective treatment delivery, for paediatric PICC insertions (historically performed in theatres under fluoroscopy guidance). To facilitate prompt PICC insertion

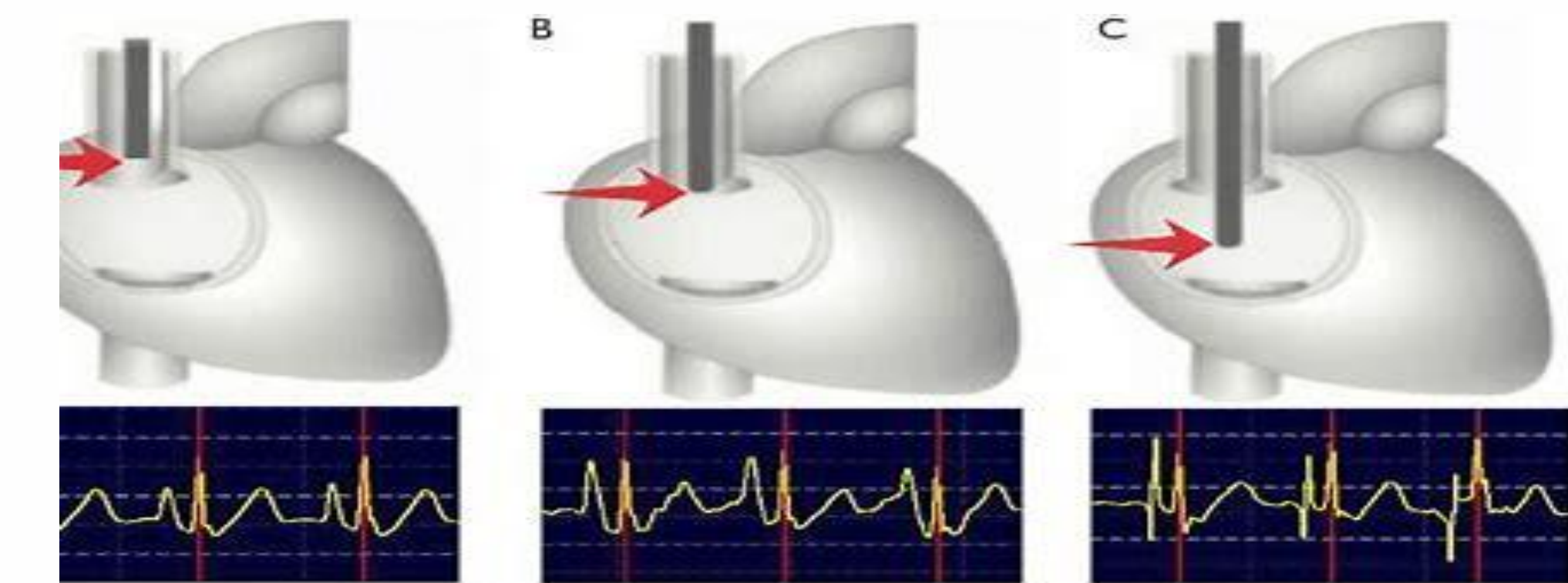
while maximising theatre space for more urgent paediatric surgeries, the VA Advanced Nurse Practitioner (ANP) started to perform PICC insertions utilising the intracavitary ECG method to confirm correct tip position.

This study explores the feasibility, benefits and accurate confirmation of catheter tip position during PICC insertion in children undergoing intravenous chemotherapy and other supportive therapies using the intracavitary ECG method.



### Methods

A retrospective longitudinal study design looking at paediatric PICC insertions from 2019 to date, utilising intracavitary ECG method to confirm catheter tip position during PICC insertion. Sherlock 3CG TPS system was used (of label) for this purpose and the catheter tip position was finally confirmed by plain chest x-ray to address any licensing related concerns.



### Results

A total of 178 PICCs inserted during the described timeframe. Only 3 of those failed to achieve intracavitary ECG tip confirmation during insertion due to different clinical reasons (mediastinal mass included), resulting in N=175 [total number of PICC insertions with correct tip position at CAJ (cavo-atrial junction), confirmed during insertion using intracavitary ECG method]

- Age ranges: 1 to 17 years of age (all under 18 years old); mean age 9 years old
- 170 (97%) had catheter tip confirmed at CAJ with correlation (confirmation) chest x-ray.
- Only 5 (3%) with tip reported in the right atrium (RA) required pulling back by 1-2 cm.
- Waiting times decreased from up to 2 weeks to less than 1 week.
- Over 200 hours main theatre time were saved and utilised for other elective and non-elective, more urgent paediatric surgeries.

### Conclusion

Intracavitary ECG can be used safely and efficiently as a reliable and accurate method to confirm catheter tip position in paediatric PICC insertion. This can contribute to the correct utilisation of clinical resources while reducing waiting times and contributing to better patient experience.

