The evidence suggests that intracavitary electrocardiogram-based positioning is superior to surface-anatomy-guided positioning of central venous access devices, leading to significantly more successful placements” Walker et al (2015).

Reference:

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Abstract:

BACKGROUND: International standard practice for the correct confirmation of the central venous access device is the chest X-ray. The intracavitary electrocardiogram-based insertion method is radiation-free, and allows real-time placement verification, providing immediate treatment and reduced requirement for post-procedural repositioning.

METHODS: Relevant databases were searched for prospective randomised controlled trials (RCTs) or quasi RCTs that compared the effectiveness of electrocardiogram-guided catheter tip positioning with placement using surface-anatomy-guided insertion plus chest X-ray
confirmation. The primary outcome was accurate catheter tip placement. Secondary outcomes included complications, patient satisfaction and costs.

RESULTS: Five studies involving 729 participants were included. Electrocardiogram-guided insertion was more accurate than surface anatomy guided insertion (odds ratio: 8.3; 95% confidence interval (CI) 1.38; 50.07; p=0.02). There was a lack of reporting on complications, patient satisfaction and costs.

CONCLUSION: The evidence suggests that intracavitary electrocardiogram-based positioning is superior to surface-anatomy-guided positioning of central venous access devices, leading to significantly more successful placements. This technique could potentially remove the requirement for post-procedural chest X-ray, especially during peripherally inserted central catheter (PICC) line insertion.

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