



The purpose of this study was to evaluate time and cost of the Sherlock 3CG TCS and blind insertion with chest X-ray tip confirmation (BI/CXR) for PICC insertions” Tomaszewski et al (2017).

Abstract:

BACKGROUND: The Sherlock 3CG™ Tip Confirmation System (TCS) provides real-time peripherally inserted central catheter (PICC) tip insertion information using passive magnetic navigation and patient cardiac electrical activity. It is an alternative tip confirmation method to fluoroscopy or chest X-ray for PICC tip insertion confirmation in adults. The purpose of this study was to evaluate time and cost of the Sherlock 3CG TCS and blind insertion with chest X-ray tip confirmation (BI/CXR) for PICC insertions.

METHODS: A cross-sectional, observational Time and Motion study was conducted. Data were collected at four hospitals in the US. Two hospitals used Sherlock 3CG TCS and two hospitals used BI/CXR to place/confirm successful PICC tip location. Researchers observed PICC insertions, collecting data from the beginning (ie, PICC kit opening) to catheter tip confirmation (ie, released for intravenous [IV] therapy). An economic model was developed to project outcomes for a larger population.

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RESULTS: A total of 120 subjects were enrolled, with 60 subjects enrolled in each arm and 30 enrolled at each of the four US hospitals. The mean time from initiation of the PICC procedure to the time to release for IV therapy was 33.93 minutes in the Sherlock 3CG arm and 176.32 minutes in the BI/CXR arm ($p < 0.001$). No malpositions were observed for PICC insertions using the Sherlock 3CG TCS, while 20% of subjects in the BI/CXR arm had a malposition. BI/CXR subjects had significantly more total malpositions (mean 0.23 vs. 0, $p < 0.001$). For a hypothetical population of 1,000 annual patients, adoption of Sherlock 3CG TCS was predicted to be cost saving compared with BI/CXR in all three analysis years.

CONCLUSION: The results from this study demonstrate that Sherlock 3CG TCS, when compared with BI/CXR, is a superior alternative with regard to time to release subject to therapy, malposition rates, and minimization of X-ray exposure.

Full Text

Reference:

Tomaszewski, K.J., Ferko, N., Hollmann, S.S., Eng, S.C., Richard, H.M., Rowe, L. and Sproule, S. (2017) 6. Time and resources of peripherally inserted central catheter insertion procedures: a comparison between blind insertion/chest X-ray and a real time tip navigation and confirmation system. ClinicoEconomics and Outcomes Research. 9, p.115-125. eCollection 2017.

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