

This study revealed significant differences in reflux volumes for fluid displacement based on NFC design” Hull et al (2017).

Abstract:

METHODS: In this study, 14 NFC brands representing each of the four market-categories of NFCs were selected for evaluation of fluid movement occurring during connection and disconnection of a syringe. Study objectives were to 1) theoretically estimate amount of blood reflux volume in microliters (μL) permitted by each NFC based on exact component measurements, and 2) experimentally measure NFC volume of fluid movement for disconnection reflux of negative, neutral and anti-reflux NFC and fluid movement for connection reflux of positive displacement NFC.

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RESULTS: The results demonstrated fluid movement/reflux volumes of 9.73 μL to 50.34 μL for negative displacement, 3.60 μL to 10.80 μL for neutral displacement, and 0.02 μL to 1.73 μL for pressure-activated anti-reflux NFC. Separate experiment was performed measuring connection reflux of 18.23 μL to 38.83 μL for positive displacement NFC connectors.

CONCLUSIONS: This study revealed significant differences in reflux volumes for fluid displacement based on NFC design. While more research is needed on effects of blood reflux in catheters and NFCs, results highlight the need to consider NFCs based on performance of individual connector designs, rather than manufacturer designation of positive, negative and neutral marketing categories for NFCs without anti-reflux mechanisms.

Reference:

Hull, G.J., Moureau, N.L. and Sengupta, S. (2017) Quantitative assessment of reflux in commercially available needle-free IV connectors. The Journal of Vascular Access. December 4th. .



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